Home Study Packet

for

Algebra 1/2

Second Edition

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by
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Test Forms

Algebra $\frac{1}{2}$: An Incremental Development
Second Edition

Test Forms

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Algebra 1/2
Test Forms

Instructions

Tests are an important component of the Saxon program. We believe that concepts and skills should be continually tested. However, tests should only be administered after the concepts and skills have been thoroughly practiced. Therefore, we recommend that tests be administered according to the testing schedule which is printed on the back side of this page.

Note: Tests may be used more than once by using a separate answer sheet or writing answers on onionskin.

Algebra $\frac{1}{2}$

Testing Schedule

Test to be administered:	Covers material up through:	Give after teaching:
Test 1	Lesson 4	Lesson 8
Test 2	Lesson 8	Lesson 12
Test 3	Lesson 12	Lesson 16
Test 4	Lesson 16	Lesson 20
Test 5	Lesson 20	Lesson 24
Test 6	Lesson 24	Lesson 28
Test 7	Lesson 28	Lesson 32
Test 8	Lesson 32	Lesson 36
Test 9	Lesson 36	Lesson 40
Test 10	Lesson 40	Lesson 44
Test 11	Lesson 44	Lesson 48
Test 12	Lesson 48	Lesson 52
Test 13	Lesson 52	Lesson 56
Test 14	Lesson 56	Lesson 60
Test 15	Lesson 60	Lesson 64
Test 16	Lesson 64	Lesson 68
Test 17	Lesson 68	Lesson 72
Test 18	Lesson 72	Lesson 76
Test 19	Lesson 76	Lesson 80
Test 20	Lesson 80	Lesson 84
Test 21	Lesson 84	Lesson 88
Test 22	Lesson 88	Lesson 92
Test 23	Lesson 92	Lesson 96
Test 24	Lesson 96	Lesson 100
Test 25	Lesson 100	Lesson 104
Test 26	Lesson 104	Lesson 108
Test 27	Lesson 108	Lesson 112
Test 28	Lesson 112	Lesson 116
Test 29	Lesson 116	Lesson 120
Test 30	Lesson 120	Lesson 124
Test 31	Lesson 124	Lesson 128
Test 32	Lesson 128	Lesson 132
Test 33	Lesson 132	Lesson 136
Test 34	Lesson 136	Lesson 136

Add:

1.
$$\begin{array}{r} 2164 \\ 217 \\ 4693 \\ +\ \ 850 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 463{,}212 \\ 907{,}315 \\ 873{,}946 \\ +\ 689{,}765 \\ \hline \end{array}$$

3. $412 + 873 + 396 + 507$

4. $60{,}392 + 875 + 15{,}489 + 7981$

Add or subtract as indicated:

5.
$$\begin{array}{r} 4003 \\ -\ 2621 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 878 \\ +\ 647 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 7953 \\ +\ \ \ 79 \\ \hline \end{array}$$

Multiply:

8.
$$\begin{array}{r} 579 \\ \times\ 846 \\ \hline \end{array}$$

9. $16 \times 7 \times 89$

Divide:

10. $\dfrac{1746}{7}$

11. $5384 \div 30$

Find the missing digits:

12.
$$\begin{array}{r} 746 \\ -\ ABC \\ \hline 378 \end{array}$$

13.
$$\begin{array}{r} 340 \\ +\ MNP \\ \hline 693 \end{array}$$

14. A number has five digits. All the digits are 4 except for the tens' digit, which is 7, and the ten-thousands' digit, which is 3. What is the number?

15. Use digits to write thirty-nine million, fourteen thousand, seven hundred two.

16. Use words to write the number 4,050,063.

17. Write 4321 in expanded form.

18. Write $(3 \times 10{,}000) + (5 \times 1000) + (4 \times 10) + (7 \times 1)$ in standard form.

19. Round 804,394,562 to the nearest thousand.

20. Arrange the following numbers in order from least to greatest: 832, 238, 283, 823, 328

Algebra 1/2   by Saxon

1. Scott has 438 baseball cards in his collection. Wes has 387 baseball cards in his collection. How many more baseball cards does Scott have in his collection than Wes has in his collection?

2. There were 3475 fans in the arena to watch the concert at 8 o'clock. 5638 more fans came into the arena between 8 o'clock and 9 o'clock. How many fans were in attendance when the concert began at 9 o'clock?

3. A number has ten digits. All of them are 6 except the millions' digit, which is 4, the ten-thousands' digit, which is 1, and the hundreds' digit, which is 5. What is the number?

Simplify mentally:

4. 16.2837×1000

5. $\dfrac{836.15}{10{,}000}$

Find the missing digits:

6.
$$\begin{array}{r} PQR \\ -\ 486 \\ \hline 328 \end{array}$$

7.
$$\begin{array}{r} AXM \\ +\ 739 \\ \hline 1182 \end{array}$$

8.
$$\begin{array}{r} 7.45 \\ -\ B.CY \\ \hline 2.47 \end{array}$$

Divide:

9. $8942 \div 34$

10. $\dfrac{70{,}377}{29}$

Multiply:

11.
$$\begin{array}{r} 408 \\ \times\ 376 \\ \hline \end{array}$$

12. 4.26×62.7

13. 0.395×0.0148

14. Round 73,481,296,055 to the nearest ten million.

15. Round 69.2456 to two decimal places.

16. Use digits and a decimal point to write twelve thousand, twenty and four hundred sixty-one ten-thousandths.

17. Use words to write the number 4,060,003.2051.

18. Add: $4.687 + 319.4 + 60.09$

19. Subtract (add to check): $32.147 - 8.2592$

20. Write these numbers in order from least to greatest: 759, 597, 795, 975, 579

Algebra 1/2   by Saxon

1. Blake lifted weights twice. The first time he was able to lift 4317 pounds in all his lifts. The second time he was able to only lift 3429 pounds in all his lifts. How much more did he lift the first time?

2. As secretary, Amy wrote five hundred sixty-four words in her minutes for the first meeting. Amy wrote six hundred seven words in her minutes for the second meeting. What was the sum of the words she wrote in the minutes for both meetings?

Simplify mentally:

3. $46{,}281 \div 10{,}000$
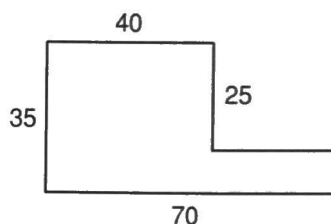
4. 12.31×1000

Multiply:

5. 8.93×61.7

6. 546×0.083

7. Subtract (add to check): $43.16 - 17.293$

8. Add: $4.341 + 16.87 + 0.039 + 543.8$

9. Find the perimeter of the figure. Dimensions are in feet. All angles are right angles.

Divide and round each answer to two decimal places:

10. $24.453 \div 8.3$

11. $\dfrac{168.7}{21}$

12. $\dfrac{46.78}{0.009}$

13. Round 7836.4813 to the nearest hundred.

14. Round 3184.6387 to two decimal places.

15. Use digits and a decimal point to write the number sixteen thousand, seventy-one and four hundred twelve ten-millionths.

16. Use words to write the number 12,003.64005.

17. Find the missing digits:

$$\begin{array}{r} AB.XY \\ - 36.43 \\ \hline 34.89 \end{array}$$

18. Is 2550 divisible by
   a) 2 ?
   b) 3 ?
   c) 5 ?
   d) 10 ?

19. Write 240 as a product of primes.

20. One hundred eighty-six students are divided into fourteen algebra I classes as evenly as possible. How many students will be in each class?

Algebra 1/2   **by Saxon**

1. Susan could locate four and one hundred twenty-one thousandths. Bill could locate 5 times that many. How many could Susan and Bill locate together?

2. The crowd sat in sections of 250. If 208 in each section were happy and there were 17 sections, how many were happy?

3. The first time she played, Eva scored eight thousand, sixteen points. The second time she played, Eva scored eight thousand, four hundred seventy-nine points. What was the sum of the scores of the two games?

4. Which numbers are divisible by 3?   675, 680, 685, 690, 695

5. Find the perimeter of this figure. Dimensions are in inches. All angles are right angles.
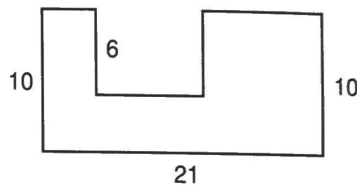
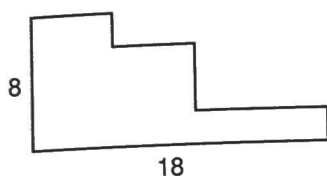Simplify mentally:

6. $8467.293 \div 1000$

7. $16,239.7458 \times 100$

8. Multiply: 63.17×5.9

9. Write 5760 as a product of primes.

10. Subtract (add to check): $161,114.33 - 7847.5713$

11. Find the missing digits:
$$\begin{array}{r} 1824.356 \\ - \ MNP.ABC \\ \hline 1435.768 \end{array}$$

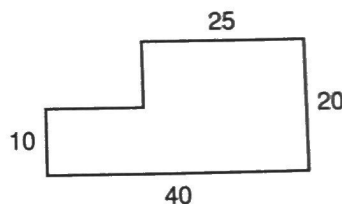Divide and round each answer to two decimal places:

12. $\dfrac{316.1}{71.3}$

13. $832.1 \div 8.98$

14. Round $63,412.3\overline{87}$ to six decimal places.

15. Use words to write the number 721.0312.

16. Add: $8.17 + 6.36 + 12.49 + 3.53$

17. Write these numbers in order from least to greatest: 4.17; 4.71; 4.107; 1.47

18. Reduce this fraction to lowest terms: $\dfrac{64}{192}$

19. Write this fraction with a denominator of 175: $\dfrac{16}{25}$

20. Write this fraction as a decimal. Round to two decimal places: $\dfrac{3}{13}$

1. Sammy made $264.49 during the first shift. Trae made twice that amount during the second shift. During the third shift Christy made 3 times the amount that Trae made. What was the total amount made during the three shifts?

2. Each bag contained 23 souvenirs. If 391 tourists came, how many bags of souvenirs would be necessary to give each tourist one souvenir?

3. Four hundred seventy-six students wore sweaters to the game. Three hundred eight students wore jackets to the game. If nine hundred sixty-one students were at the game, how many did not wear sweaters or jackets?

4. What prime numbers are greater than 60 but less than 75?

5. Find the perimeter of this figure. Dimensions are in feet. All angles are right angles.

6. Find the area of this figure. Dimensions are in inches. All angles are right angles.

Write each fraction as a decimal number (round to two decimal places):

7. $\dfrac{14}{15}$

8. $\dfrac{3}{19}$

9. Write 3600 as a product of primes.

10. Multiply: 67×15.87

11. Simplify mentally: $312.56 \div 10{,}000$

12. Subtract: $417.23 - 38.461$

13. Divide and round to two decimal places: $\dfrac{13.12}{6.8}$

14. Round $8.\overline{16}$ to the nearest hundred-thousandth.

15. Use words to write the number 4368.57013.

16. Add: $87.3 + 108 + 16.39 + 4.007$

Write each number as a product of prime factors and simplify:

17. $\dfrac{48}{80}$

18. $\dfrac{1260}{1980}$

Simplify (if possible, cancel before multiplying):

19. $\dfrac{36}{21} \cdot \dfrac{7}{9}$

20. $\dfrac{5}{12} \div \dfrac{8}{15}$

Algebra 1/2   by Saxon

1. Each beehive can hold 6425 bees. If there are 75,000 bees in the swarm, how many beehives will be needed to hold them all?

2. Kelli consumed twenty-three thousand, four hundred eight calories the first week of her diet. She consumed eighteen thousand, sixty-nine calories the second week. How many calories did her consumption decrease from the first week to the second?

3. Which of the following numbers are divisible by both 2 and 3?   198, 284, 124, 258, 314

4. List the prime numbers between 80 and 100.

5. List the multiples of 3 between 10 and 20.

6. Find the average of 47, 101, 39, 68, and 45.

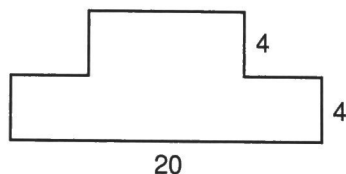7. The average of four numbers is 88.75. The first three numbers are 91, 87, and 92. Find the fourth number.

Simplify (if possible, cancel as the first step):

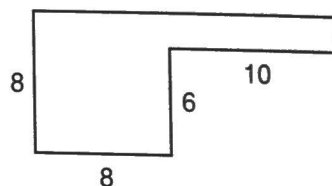8. $\dfrac{2}{3} \cdot \dfrac{15}{20} \div \dfrac{16}{25}$

9. $\dfrac{7}{10} \cdot \dfrac{5}{14} \div \dfrac{3}{8}$

10. Write each number as a product of prime factors and simplify: $\dfrac{36}{60}$

11. Find the perimeter of the following figure. Dimensions are in inches. All angles are right angles.

12. Find the area of the following figure. Dimensions are in feet. All angles are right angles.

13. Write $\dfrac{9}{13}$ as a decimal. Round to two decimal places.

14. Write 240 as a product of primes.

15. Multiply: (312)(2.17)

16. Subtract (add to check):   41.84 − 39.952

17. Divide and round to two decimal places: $\dfrac{3.723}{0.9}$

18. Round 3,817,321.127 to the nearest thousand.

19. Use words to write the number 1,237,183.721.

20. Use unit multipliers to convert 47 feet to inches.

Algebra 1/2   by Saxon

1. On the first day 3716 entered the contest. Three times that many entered the contest on the second day. Only 2977 entered the contest on the third day. How many entered the contest in all?

2. Find the mean of the prime numbers that are greater than 30 and less than 50.

3. Which of the following numbers are divisible by 5?   612, 735, 857, 900, 993

Use unit multipliers to convert:

4. 31.2 meters to centimeters

5. 17,216 feet to miles

Simplify:

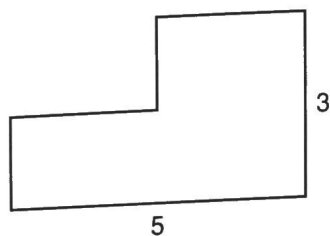6. $\dfrac{3}{8} \cdot \dfrac{16}{24} \cdot \dfrac{32}{10}$

7. $\dfrac{14}{5} \cdot \dfrac{24}{16} \div \dfrac{7}{15}$

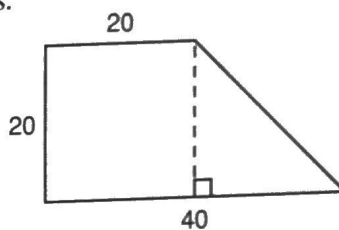8. Write 2880 as a product of prime factors.

9. Multiply: 72.61×8.19

10. Subtract (add to check): $412.712 - 39.77$

11. Express the perimeter in centimeters. Dimensions are in meters. All angles are right angles.

12. Find the area of this figure. Dimensions are in feet. All angles that look like right angles are right angles.

13. Write $\dfrac{15}{17}$ as a decimal. Round to two decimal places.

14. Write each number as a product of prime factors and simplify: $\dfrac{54}{72}$

15. Divide and round to two decimal places: $\dfrac{843.1}{0.07}$

16. Round 7,412,385.096 to the nearest tenth.

17. Three times 16,480,004 is a very large number. Write this very large number in words.

18. Simplify mentally: $483,703.126 \div 1000$

19. Write $\dfrac{31}{5}$ as a mixed number.

20. Write $8\dfrac{7}{9}$ as an improper fraction.

Algebra 1/2   **by Saxon**

1. The average attendance of the school was 750 in September, 700 in October, 775 in November, and 625 in December. Make a bar graph that displays this information.

2. The first distance was sixteen thousand and three hundred twelve ten-thousandths feet. The second distance was twenty-one thousand, twelve and thirty-six hundred-thousandths feet. How much less was the first distance than the second distance?

3. Three thousand, two hundred seven nails can be put into one box. If there are forty-one thousand, nine hundred fifty-seven nails in all, how many boxes are necessary to hold them?

4. Find the mean temperature if it was 84° on Monday, 78° on Tuesday, 87° on Wednesday, 81° on Thursday, and 74° on Friday.

5. Find $\frac{4}{7}$ of 32.

6. Draw a diagram that shows why $4\frac{5}{7}$ equals $\frac{33}{7}$.

7. Convert $9\frac{5}{8}$ to an improper fraction.

8. Convert $\frac{73}{6}$ to a mixed number.

9. Three hundred twenty rods equals 1 mile. Use a unit multiplier to convert 8000 rods to miles.

10. Write each number as a product of prime factors and simplify: $\frac{405}{540}$

Simplify:

11. $\frac{3}{4} + \frac{3}{8} + \frac{1}{3}$

12. $\frac{5}{9} - \frac{2}{5}$

13. $\frac{2}{6} \cdot \frac{9}{18} \div \frac{3}{12}$
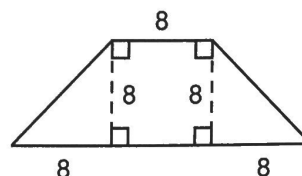
14. 0.094×2.06

15. $814.017 - 8.128$

16. Divide and round to two decimal places: $\frac{16.47}{1.3}$

17. Write $\frac{7}{11}$ as a decimal. Round to two decimal places.

18. Find the least common multiple of 24, 40, and 75.

19. Round 40,620,098,581.62 to the nearest hundred thousand.

20. Find the area of this figure. Dimensions are in feet.

SHOW YOUR WORK

Name: _____

1. Each building can house 307 athletes. There are 6481 athletes at the competition. How many buildings will be needed to house all the athletes?

2. The production of wheat in millions of bushels was 21 in 1970, 52 in 1975, 46 in 1980, and 35 in 1985. Draw a broken line graph that presents this information.

3. The junior high classes numbered 312, 284, and 318. The senior high classes numbered 298, 304, and 278. What was the average number of each of the 6 classes?

4. Susan bought 4 pens that cost $1.19 each. Pencils cost $1.47 each and she bought 3 of them. She bought 8 notebooks that cost $1.35 each. How much money did Susan spend in all?

5. What number is $\frac{7}{11}$ of 800?

6. Write $\frac{63}{5}$ as a mixed number.

7. Find the least common multiple of 80, 90, and 100.
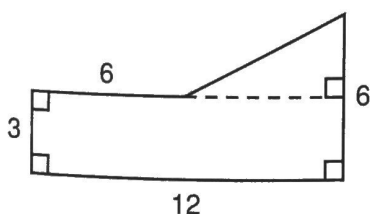
Simplify:

8. $\frac{3}{4} + \frac{5}{12} - \frac{5}{6}$

9. $\frac{5}{6} - \frac{7}{18}$

10. $14\frac{3}{8} + 17\frac{11}{12}$

11. $\frac{7}{8} \cdot \frac{16}{21} \div \frac{14}{9}$

12. $7 + 5 \cdot 4 - 3 \cdot 6$

13. $716.2 \div 0.0008$

Use two unit multipliers to convert:

14. 16 yards to inches

15. 42.5 kilometers to centimeters

16. Write $\frac{5}{8}$ as a decimal.

Evaluate:

17. $mn + m$ if $m = 4$ and $n = 3$

18. $abc - ac$ if $a = \frac{1}{2}$, $b = 4$, and $c = 6$

19. Find the area of this figure. Dimensions are in feet.

20. Find the perimeter of this figure. All angles are right angles. Dimensions are in yards.

Algebra 1/2 by Saxon

1. Manuel read 120 pages in 3 hours. Write the two rates (ratios) implied by this statement. How long would it take Manuel to read a 560-page novel?

2. The first typist typed 47 letters. The second typist typed 59 letters and the third typist typed 41 letters. What was the average of the typist's letters?

3. Four thousand, seventy-two boxes were shipped. Twelve books were in each box. How many books were shipped in all?

4. What number is $\frac{7}{8}$ of 160?

5. Write $\frac{364}{17}$ as a mixed number.

6. Find the least common multiple of 15, 16, and 18.

Simplify:

7. $\frac{5}{14} - \frac{1}{8}$

8. $5\frac{7}{12} + 3\frac{3}{4} + 4\frac{1}{8}$

9. $3\frac{5}{6} + 4\frac{7}{18} - 5\frac{2}{3}$

10. $5\frac{1}{4} - 2\frac{3}{10}$

11. $6 \cdot 5 - 4(2) + (8)3 - 12$

12. 214.7×3.05

13. $712.46 - 82.071$

14. $\frac{10}{12} \cdot \frac{16}{5} \div \frac{24}{7}$

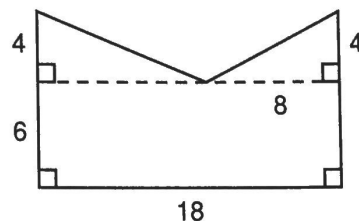15. Evaluate: $pqa + p - q$ if $p = 4$, $q = \frac{1}{2}$, and $a = 3$

16. Use unit multipliers to convert 16,000 inches to miles.

17. Simplify mentally: $14{,}384{,}002 \div 10{,}000$

18. Solve: $x + 9 = 13$

19. Round $3064.0\overline{16}$ to four decimal places.

20. Find the area of this figure. Dimensions are in feet.

1. The cost of 23 objects was $161. How many objects could be purchased for $448?

2. The first race was won by three hundred seven ten-thousandths seconds. The second was won by four thousand, one hundred thirty-six hundred-thousandths seconds. By how much closer was the first race won than the second race?

3. The average of the first two numbers was 7. The average of the last eight numbers was 11. What was the overall average?

4. Write $\frac{7}{19}$ as a decimal. Round to two decimal places.

5. What number is $\frac{11}{15}$ of 850?

6. Write $\frac{372}{13}$ as a mixed number.

7. Find the least common multiple of 22, 44, and 264.

Solve:

8. $x - \frac{3}{4} = \frac{4}{5}$

9. $\frac{x}{3} = 12$

10. $8x = 96$

11. Evaluate: $xy + xz - yz$ if $x = 4$, $y = 2$, and $z = 5$

Simplify:

12. $7\frac{5}{12} - 4\frac{7}{8}$

13. $3\frac{3}{5} \times 3\frac{3}{4} \times 2\frac{5}{6}$

14. $\frac{2}{7} \cdot \frac{3}{10} \div \frac{9}{14}$
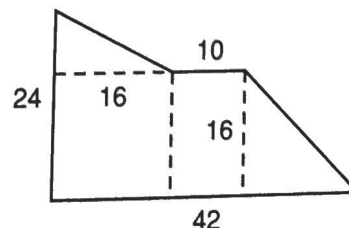
15. $4(15 - 3) - (19 - 14 + 3)2 + 8$

16. $12 + (3 \cdot 4)5 + 4(11 - 4)$

17. $(482.7)(0.039)$

18. $\frac{82.458}{0.09}$

19. Use two unit multipliers to convert 300 square inches to square feet.

20. Find the area of this figure. Dimensions are in meters. Corners that look square are square.

Algebra 1/2   by Saxon

1. The average height of the eight shorts was 150 centimeters. The average height of the twelve mediums was 170 centimeters, and the average height of the five talls was 200 centimeters. What was the overall average of all 25?

2. The grocery store displayed 16 crates of oranges. Each crate contained 179 oranges. How many oranges did the grocery store display?

3. Thirteen fasteners cost $0.78. Write two rates (ratios) for this statement. Then find the cost for purchasing four thousand, six hundred eighty-seven fasteners.

4. What number is $\frac{4}{9}$ of 684?

5. Find the least common multiple of 12, 35, and 42.

Solve:

6. $\frac{9}{4}x = 8$

7. $x + \frac{3}{7} = \frac{4}{5}$

8. Evaluate: $mn + mnp - np$ if $m = 2$, $n = 15$, and $p = \frac{1}{5}$

9. Use two unit multipliers to convert 278,420 centimeters to kilometers.

Simplify:

10. $4(7 - 3) + 3(4 - 1) - 6$

11. $\frac{2}{3} - \frac{1}{2} \cdot \frac{3}{4}$

12. $4\frac{4}{5} + 2\frac{1}{3} - 3\frac{8}{15}$

13. $6\frac{4}{5} \times 2\frac{1}{2} \div 2\frac{3}{8}$

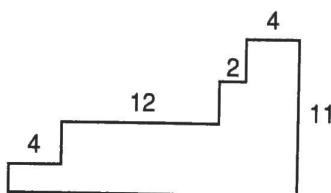14. $\dfrac{4\frac{3}{8}}{1\frac{3}{4}}$

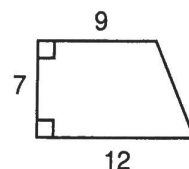15. $\dfrac{437.6}{0.004}$

16. $11.82 - 9.763$

17. $\sqrt[4]{16} + \sqrt[3]{125}$

18. $3^2 + 5^3 - 3^4$

19. Find the perimeter of this figure. All angles are right angles. Dimensions are in meters.

20. On the left we show the base of a right solid whose height is 3 meters. Dimensions are in meters. Find the volume of the solid.

Algebra 1/2   **by Saxon**

SHOW YOUR WORK   Name: _____

1. The average score of the five tests was 83. The first four scores were 91, 78, 86, and 72. What was the score of the fifth test?

2. Twelve could be purchased for $132. Write the two rates (ratios) implied by this statement. How many could be purchased for $1716?

3. Benny guessed four hundred seventeen ten-thousandths and Jenny guessed four hundred seventeen hundred-thousandths. Who guessed the most and by how much?

4. Find the volume of the right triangular prism. Dimensions are in feet.
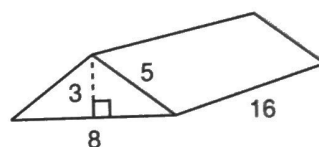
5. Find the surface area of the prism in Problem 4.

6. Five-sixths of what number is 40?

7. What fraction of 72 is 45?

8. Find the least common multiple of 40, 50, and 60.

Solve:

9. $\frac{3}{8}x = 69$

10. $x - \frac{7}{16} = 2\frac{5}{8}$

Simplify:

11. $34 - 3[(5 - 3)(2 + 4) - 8]$

12. 347.5×0.069

13. $2^4 - \sqrt[3]{64} + 3^3$

14. $3\frac{3}{5} \cdot \frac{10}{27} - \frac{7}{12}$

15. $23\frac{3}{8} - 16\frac{13}{16}$

16. $4\frac{2}{3} \div 2\frac{1}{4} \times 3\frac{1}{3} \times 2\frac{1}{4}$

Evaluate:

17. $abc + ab - c$ if $a = 12$, $b = \frac{1}{6}$, and $c = 10$

18. $x^2 + y^3 - x$ if $x = 3$ and $y = 2$

19. Use two unit multipliers to convert 12 square feet to square inches.

20. Write the number 610,042.00573 in words.

Algebra 1/2   by Saxon

1. The first one came to 523. The second one came to 562. The third one was a whopper and came to 1458. By how much did the third exceed the sum of the first and the second?

2. During the cold spell Sean bought 14 heaters for $322. How much will Sean have to spend in order to buy 39 heaters for his tenement house?

3. Maria averaged 212 miles on the first 3 days of her trip. She averaged only 104 miles on the last 6 days of her trip. What was the overall average number of miles driven per day?

4. (a) Write 0.000036 in scientific notation.
    (b) Write 4.78×10^8 in standard notation.

5. What is the volume of a solid whose base is the figure shown on the left and whose height is 4 inches? Dimensions are in inches.

    8

    6   10   7
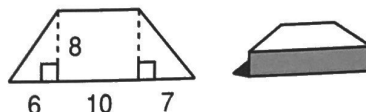
6. Find the least common multiple of 25, 40, and 50.

7. Four-sevenths of 84 is what number?

8. What decimal part of 255 is 153?

9. 0.12 of what number is 72?

Solve:

10. $\frac{3}{5} x = 48$

11. $x + 2\frac{2}{3} = 5\frac{1}{4}$

Simplify:

12. $2^2 + 2^3[4(3 - 1)(2 + 4) - 13]$

13. $2^3 + 3^2 - 2^4 + \sqrt[4]{16}$

14. $\frac{361.05}{0.03}$

15. $\frac{1}{2}\left(\frac{5}{6} - \frac{2}{3}\right) + \frac{3}{8}$

16. $2\frac{1}{6} \div 3\frac{1}{3} \times 6\frac{1}{4} \div 4\frac{1}{3}$

17. $4\frac{2}{3} - \frac{7}{15} + 3\frac{4}{5}$

Evaluate:

18. $xy - z + xz + y$ if $x = \frac{1}{3}$, $y = 24$, and $z = 6$

19. $\sqrt[3]{a} + ab$ if $a = 8$ and $b = 5$

20. (a) What is 1 percent of 320?
     (b) What is 64 percent of 320?

SHOW YOUR WORK   Name: _____

1. The driver rested after traveling 440 miles in 8 hours. If he traveled at the same rate the next day, how far could he go in 12 hours?

2. The first attempt measured one million, four thousand, five. The second attempt measured eight hundred ninety-seven thousand, six hundred seventeen. By how much did the first attempt outmeasure the second?

3. The five linemen averaged 268 pounds. Four of the linemen weighed 280, 262, 293, and 251 pounds. What was the weight of the fifth lineman?

4. Complete the table. Begin by inserting reference numbers.

| Fraction	Decimal	Percent
$\frac{4}{5}$	(a)	(b)

5. Use two unit multipliers to convert 50,000 square meters to square kilometers.

6. 0.32 of 150 is what number?

7. What fraction of $2\frac{1}{3}$ is $\frac{21}{4}$?

8. (a) Write 878,000,000 in scientific notation.
   (b) Write 2.06×10^{-4} in standard notation.

9. What is the volume of a right solid whose base is the figure shown on the left and whose height is 5 feet? Dimensions are in feet.
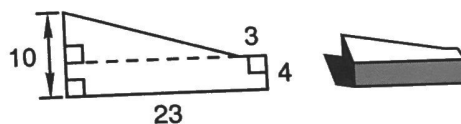
Solve:

10. $\frac{8}{5} = \frac{12}{x}$

11. $3\frac{2}{3}x = 4$

12. $x - 2\frac{3}{8} = 11\frac{3}{5}$

Simplify:

13. $44 + 3[(12 - 3^2)(2 + 1) - 5]$

14. $\sqrt[3]{27} + 2^2[2^3(\sqrt{25} - 2^2) - 2]$

15. $4316.25 - 849.372$

16. $3\frac{2}{5} + 2\frac{3}{5} \cdot 1\frac{1}{2}$

17. $\frac{1}{5}\left(2\frac{1}{3} - \frac{1}{2}\right) + \frac{9}{10}$

18. $4\frac{1}{2} \times 1\frac{1}{3} \div 2\frac{1}{4} \cdot \frac{1}{12}$

Evaluate:
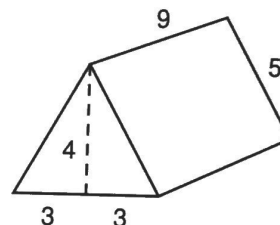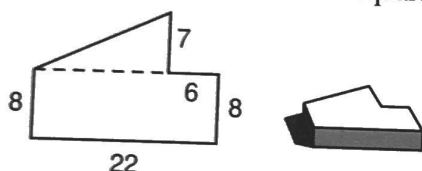
19. $x^2 + xy - y^2$ if $x = 5$ and $y = 4$

20. $\sqrt[3]{x} + \sqrt[x]{27} + xy$ if $x = 8$ and $y = 3$

1. The cyclist pedaled the first 1600 meters in 2 minutes. How long would it take her to pedal a total of 10,000 meters?

2. The new machine copied 74 sheets per minute. How many sheets would the machine copy in a 30-minute period?

3. Complete the table. Begin by inserting reference numbers.

Fraction	Decimal	Percent
(a)	0.24	(b)

4. (a) Write 0.000000401 in scientific notation.
   (b) Write 3.04×10^7 in standard notation.

5. What decimal part of 800 is 160?

6. Three-fourths of what number is $16\frac{1}{2}$?

7. $4\frac{2}{3}$ of $6\frac{3}{4}$ is what number?

8. The base of a right solid is shown on the left. If the sides of the solid are 4 centimeters high, what is the volume of the solid? Dimensions are in centimeters. Corners that look square are square.

9. Find the surface area of this triangular prism. Dimensions are in feet.

Solve:

10. $\dfrac{\frac{3}{4}}{\frac{5}{8}} = \dfrac{x}{10}$

11. $3\frac{1}{3}x + 1\frac{5}{6} = 4\frac{1}{2}$

12. $x - \dfrac{3}{4} = \dfrac{4}{5}$

13. $3x + 9 = 33$

Simplify:

14. $26 + 2^2[(\sqrt[3]{8} + \sqrt{16})(3 - 2)] + 3^2$

15. 12.58×0.0031

16. $\dfrac{1}{4}\left(3\frac{1}{2} + 4\frac{1}{3}\right) - \dfrac{7}{8}$

17. $6\frac{2}{3} - 4\frac{1}{6} \times 1\frac{3}{5}$

18. $1\frac{1}{4} \times \dfrac{3}{4} \div 3\frac{1}{2} \times 2\frac{1}{4}$

19. Evaluate: $mn + \sqrt[m]{n} + n^m$ if $m = 3$ and $n = 8$

20. The radius of a circle is 4 meters.
    (a) What is the circumference of the circle?
    (b) What is the area of the circle?

Algebra 1/2   by Saxon

SHOW YOUR WORK   Name: _____

1. They pushed and shoved until $2\frac{3}{4}$ as many as were necessary passed through the gates. If 4400 passed through the gates, how many were necessary?

2. Jacqueline hiked 21 miles in seven hours. After a good night's sleep she doubled her speed the next day. How far did she hike in four hours the next day?

3. Complete the table. Begin by inserting the reference numbers.

Fraction	Decimal	Percent
(a)	(b)	76

4. Use two unit multipliers to convert 18,000 inches to yards.

5. 0.36 of what number is 588?

6. What fractional part of 78 is 13?

7. Round 476,305,821 to the nearest million and write the rounded number in scientific notation.

8. Find the least common multiple of 4, 8, 12, and 20.

9. Evaluate: $b^a + a^b + \sqrt[a]{c}$ if $a = 3$, $b = 2$, and $c = 8$

10. Find (a) the perimeter and (b) the area of this figure. Dimensions are in meters.
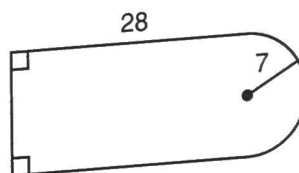
Solve:

11. $\dfrac{3\frac{1}{5}}{4\frac{3}{10}} = \dfrac{2}{x}$

12. $2\frac{1}{5}x - 1\frac{1}{3} = 5\frac{3}{5}$

13. $\frac{5}{4}x = 3\frac{1}{8}$

14. $4x - 3 = 23$

Simplify:

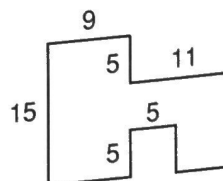15. $3^2 + 3[2^2(\sqrt{81} - 2) - 3] - \sqrt[3]{8}$

16. $\dfrac{222.625}{0.025}$

17. $\dfrac{3}{16} + \dfrac{2}{5} \cdot \dfrac{1}{3}$

18. $\dfrac{1}{4}\left(2\frac{1}{3} - 1\frac{2}{3}\right) + \dfrac{3}{10}$

19. $3\frac{1}{3} \div \frac{2}{3} \div 2\frac{5}{6} \times 2\frac{1}{2}$

20. The base of a right solid is shown on the left. If the solid is 3 yards high, what is the volume of the solid in cubic yards? Dimensions are in yards. All angles are right angles.

Algebra 1/2 by Saxon

1. The ratio of students who ride the bus to students who do not ride the bus is 7 to 3. If 490 students ride the bus, how many students do not ride the bus?

2. Two-thirds of the people in attendance had seen a game before. If 12,000 people attended, how many people had seen a game before?

3. The small box held 18 ounces and cost $2.52. The big box held 44 ounces and cost $6.60. Using unit prices, which box was the better buy?

4. The first 200 miles of the trip was covered in 8 hours. If the speed is doubled, how many miles can be covered in the next 6 hours?

5. Complete the table. Begin by inserting the reference number.

Fraction	Decimal	Percent
$\dfrac{7}{20}$	(a)	(b)

6. Round 0.000216453 to the nearest hundred-thousandth and write the rounded number in scientific notation.

7. 0.35 of 160 is what number?

8. Three-fourths of what number is 10,500?

9. Complete the percent diagram by finding a, b, and c.

of 240

Before, 100%

60 is a%

b is c%

After

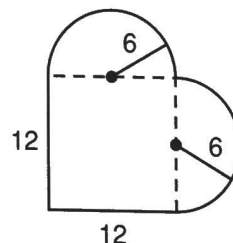10. Forty percent of what number is 8000? Draw a diagram of the problem.
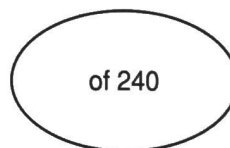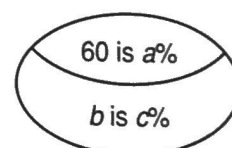
11. Find (a) the perimeter and (b) the area of the figure on the left. Dimensions are in feet.

12. What is the volume of a right solid whose base is shown in problem 11 and whose sides are 4 feet tall?

6

12

6

12

Solve:

13. $\dfrac{6\frac{1}{3}}{5\frac{1}{2}} = \dfrac{x}{6}$

14. $3\frac{1}{5}x + \frac{2}{3} = 8\frac{7}{15}$

15. $7x + 13 = 27$

Simplify:

16. $\dfrac{1}{3}\left(2\frac{1}{4} \cdot \frac{1}{2} - \frac{1}{4}\right) + \dfrac{5}{24}$

17. $3^2 + \sqrt{9}[2(2^2 - 2)(\sqrt{16} - 1) - 3]$

18. $416{,}145.723 - 781.729$

19. $2\frac{1}{3} \times 12\frac{1}{6} \div 1\frac{5}{12} \div \frac{1}{4}$

20. Evaluate: $xy + x^y + \sqrt[y]{z}$ if $x = 4$, $y = 2$, and $z = 9$

Algebra 1/2   **by Saxon**

SHOW YOUR WORK   Name: _____

1. The principal rewarded four-elevenths of all the students. If he rewarded 200 students, how many students were there in all?

2. The ratio of trucks to cars in the parking lot was 2 to 11. If there were 462 trucks in the parking lot, how many cars were there?

3. Sam could average 50 miles per hour going against the wind. If he were going against the wind, how many hours would it take Sam to go 325 miles?

4. Three hundred is what percent of 750? Draw a diagram of the problem.

5. Twenty percent of what number is 300? Draw a diagram of the problem.

6. Complete the table. Begin by inserting the reference numbers.

Fraction	Decimal	Percent
(a)	0.88	(b)

7. Round 75,641.02873 to the nearest thousand and write the rounded number in scientific notation.

8. What decimal part of 370 is 296?

9. Find (a) the perimeter and (b) the area of the figure on the left. Dimensions are in meters.

10. What is the volume of a right solid whose base is shown in problem 9 and whose sides are 5 meters high?

11. Graph: $x > 2$
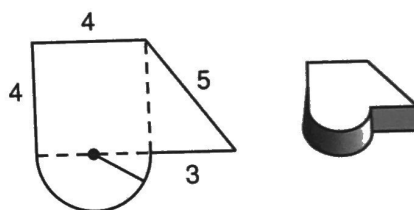
Solve:

12. $\dfrac{6\frac{1}{4}}{3\frac{1}{8}} = \dfrac{\frac{2}{7}}{x}$

13. $3\frac{1}{2}x + 2\frac{1}{2} = 9\frac{3}{8}$

Simplify:

14. $\left(\dfrac{3}{4}\right)^2$

15. $\sqrt{\dfrac{16}{49}}$

16. $(-3) + (-7) + (12) + (-4)$

17. $11 + \sqrt[3]{27}\,[2^2(3 - 2) - 3]$

18. 213.013×0.067

19. $\dfrac{1}{5}\left(3\frac{1}{4} - 1\frac{2}{3}\right) + \dfrac{7}{12}$

20. Evaluate: $\sqrt[x]{y} + z^x$ if $x = 4$, $y = 16$, and $z = 3$

Algebra 1/2 **by Saxon**

1. Contributions accounted for two-fifths of the money received. If $950 was received in all, how much money was contributed?

2. Sherry maneuvered her way through the first 60 miles in 4 hours. Then she doubled her speed for the last part of the trip. If the total trip was 300 miles, how many hours did it take Sherry to maneuver the last part?

3. Three tacos cost a total of $1.17. How many tacos can be purchased for $15.21?

4. Graph: $x \leq -3$

5. Thirty-eight percent of 750 is what number? Draw a diagram of the problem.

6. Complete the table. Begin by inserting the reference numbers.

Fraction	Decimal	Percent
(a)	(b)	37

7. Write 2.16×10^{-7} in standard notation.

8. Find the volume of this right circular cylinder in cubic meters. Dimensions are in meters.

9. Find the surface area of the right circular cylinder shown in problem 8.

10. Use two unit multipliers to convert 50 square meters to square centimeters.
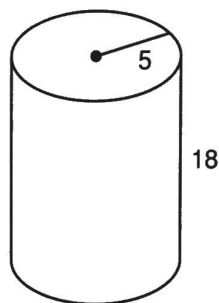
Solve:

11. $\dfrac{3\frac{1}{4}}{6\frac{1}{2}} = \dfrac{x}{\frac{8}{13}}$

12. $4\frac{1}{4}x + 5\frac{1}{2} = 8\frac{3}{8}$

Simplify:

13. $\sqrt[3]{\dfrac{27}{64}}$

14. $\left(\dfrac{2}{5}\right)^3$

15. $(4 \times 10^7) \times (2 \times 10^{-11})$

16. $-4 + 7 - 5 - 8 + 6$

17. $4^3 + \sqrt{81}[3^2(7 - 5)(3^2 - 2^3) - 15]$

18. $\dfrac{632.89}{0.004}$

19. $\dfrac{1}{4}\left(3\frac{1}{4} \cdot \dfrac{2}{3} - \dfrac{5}{6}\right) + \dfrac{3}{4}$

20. Evaluate: $\sqrt[a]{c} + m^a$ if $a = 2$, $c = 64$, and $m = 7$

Algebra 1/2   by Saxon

1. The walls collapsed because $3\frac{1}{2}$ times the design amount had been stored inside. If 980 tons had been stored inside, what was the design amount?

2. An economical automobile can travel 416 miles on just 13 gallons of gasoline. How many gallons of gasoline will be needed for a trip of 1792 miles?

3. After traveling 120 miles in four hours, Dixie increased her speed by 10 miles per hour. How long did it take Dixie to travel the next 280 miles?

4. Graph: $x \geq -1$

5. What number is 35 percent of 600? Draw a diagram of the problem.

6. What percent of 60 is 270? Draw a diagram of the problem.

7. Complete the table. Begin by inserting the reference numbers.

Fraction	Decimal	Percent
$\frac{16}{25}$	(a)	(b)

8. Find the volume in cubic feet of a right solid whose base is shown on the left and whose sides are 24 feet high. Dimensions are in feet.
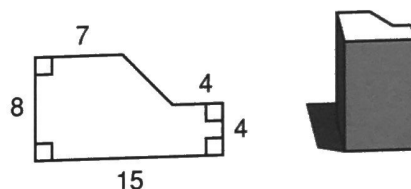
9. Find the least common multiple of 18, 27, and 36.

Solve:

10. $3x - 14 = 22$

11. $\dfrac{\frac{7}{9}}{\frac{15}{18}} = \dfrac{m}{18}$

12. $3\frac{3}{4}x + 3\frac{3}{4} = 6\frac{5}{8}$

Simplify:

13. (a) $(-5)(3)$ (b) $(5)(3)$

    (c) $(-5)(-3)$ (d) $(5)(-3)$

14. (a) $\dfrac{16}{-2}$ (b) $\dfrac{-16}{-2}$ (c) $\dfrac{-16}{2}$ (d) $\dfrac{16}{2}$

15. $-4 - 9 + 5 + (-3) - 6$

16. $3^3 + \sqrt[3]{8}\,[2^2(2^3 - 5)(2^5 - 5^2) - 13]$

17. $1.215 - 0.6161$

18. $3\frac{1}{8} \cdot 4\frac{1}{3} \div \frac{15}{6}$

19. Evaluate: $mn + m^n + n^m + \sqrt[n]{m}$ if $m = 4$ and $n = 2$

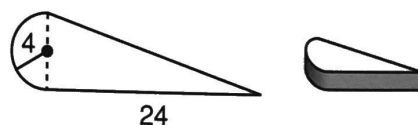20. Write 6.03×10^{10} in standard form.

Algebra 1/2   by Saxon

1. The ratio of flowers to weeds was 2 to 7. If there were 164 flowers in the garden, how many weeds were there?

2. Eric traveled the last 180 miles of the trip at 45 miles per hour. The entire trip covered 380 miles and took 9 hours. What was his rate for the first 200 miles?

3. The crowd reached $2\frac{2}{3}$ times the expected attendance. If 3600 were expected to attend, how many were there?

4. Graph: $x < 4$

5. If 80 is increased by 120 percent, what is the resulting number? Draw a diagram of the problem.

6. Complete the table. Begin by inserting the reference numbers.

Fraction	Decimal	Percent
(a)	0.61	(b)

7. Write this product in scientific notation: $300{,}000 \times 0.000000002$

8. Forty-seven one-thousandths of what number is 1.41?

9. Use two unit multipliers to convert 27,000 inches to miles.

Evaluate:

10. $-m - mn$ if $m = -3$ and $n = -5$

11. $ap + \sqrt[q]{p}$ if $a = 4$ and $p = 81$

12. Find the volume of a right solid whose base is shown on the left and whose sides are 7 meters high. Dimensions are in meters.

Solve:

13. $-9x + 13 = 67$

14. $-3\frac{1}{3}x - \frac{1}{6} = 2\frac{1}{3}$

15. $\dfrac{3\frac{2}{3}}{\frac{7}{5}} = \dfrac{\frac{3}{7}}{x}$

Simplify:

16. $-(-\{-[-(-4)]\})$

17. (a) $(3)(-6)$ (b) $(-3)(6)$ (c) $(-3)(-6)$

18. (a) $\dfrac{-28}{7}$ (b) $\dfrac{-28}{-7}$ (c) $\dfrac{28}{-7}$

19. $4^2 + 2^3\left[5\left(\sqrt{16} - \sqrt[3]{27}\right)\left(2 + \sqrt{\frac{9}{25}}\right)\right]$

20. $\dfrac{5}{6}\left(4\frac{1}{5} \cdot \frac{3}{7} - \frac{1}{2}\right) + \frac{1}{2}$

1. The sum of 3 times a number and 7 is –20. What is the number?

2. Thirty boxes of bandages can be bought for $180. What would 84 boxes of bandages cost?

3. After trotting down the trail sixteen miles in two hours, the horse and rider tripled their speed by galloping the next 72 miles. How many hours did the horse and rider gallop?

4. Write the algebraic phrase that is described:
   (a) Twice the sum of four times the opposite of a number and 7
   (b) The product of 3 and a number decreased by 5

Graph:

5. $x < 0$

6. $x > -2$

7. What percent of 70 is 175? Draw a diagram of the problem.

8. What number is 160 percent of 240? Draw a diagram of the problem.

Evaluate:

9. $mn + mz$ if $m = -2$, $n = -3$, and $z = 5$

10. $x^y + yxa + \sqrt[a]{x}$ if $x = 8$, $y = 2$, and $a = 3$

11. Find the volume in cubic feet of a right solid whose base is shown on the left and whose sides are 4 feet high. Dimensions are in feet.
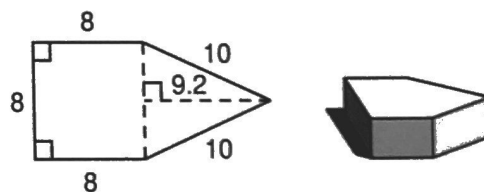
12. Find the lateral surface area of the right solid shown in problem 11.

Solve:

13. $-8x - 3 = 14$

14. $\dfrac{\frac{3}{4}}{\frac{1}{2}} = \dfrac{\frac{1}{3}}{x}$

15. $-2\frac{1}{4}x + \frac{5}{8} = 4\frac{1}{2}$

Simplify:

16. (a) $(-5)(4)$ (b) $\dfrac{24}{-8}$

17. $-[-(-3)] + 2^2(3^2 - \sqrt[3]{27})$

18. $\frac{1}{4} \div 2\frac{3}{4} \times 1\frac{2}{3} \div 4\frac{1}{3}$

19. 413.13×0.0008

20. $-3(-4) + (-3)(-5) - (-3)$

Algebra 1/2 by Saxon

1.   A number was multiplied by 4. Then this product was decreased by 7. If the result was 29, what was the number?

2.   The sum of 6 and –3 times a number is –63. What is the number?

3.   The ratio of the staggering to the stumbling is $3\frac{3}{4}$ to 5. If 76 were stumbling, how many were staggering?

4.   Graph: $x \nleq 3$

5.   What percent of 360 is 90? Draw a diagram of the problem.

6.   If 180 is increased by 60 percent, what is the resulting number? Draw a diagram of the problem.

7.   Find the volume and surface area of a right circular cylinder with a diameter of 16 feet and a height of 8 feet.

8.   Find the lateral surface area of a right solid whose base is shown on the left and whose sides are 6 centimeters high. Dimensions are in centimeters.
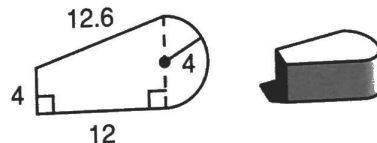
9.   Use two unit multipliers to convert 7,000,000 square centimeters to square meters.

10. Use the cut and try method to find $\sqrt{30}$ to one decimal place. Show your work.

11. Write in scientific notation and simplify: $32{,}000{,}000 \times 2{,}000{,}000{,}000$

Solve:

12. $-6x + 11 = 53$

13. $\dfrac{4\frac{2}{5}}{2\frac{3}{4}} = \dfrac{4}{x}$

14. $-1\frac{1}{2}x - 1\frac{1}{4} = 4\frac{2}{3}$

Simplify:

15. $\dfrac{384.21}{0.9}$

16. $\dfrac{2(5 - 3)4 + 3 \cdot 2}{4 - (-3)}$

17. $\sqrt{100} + 3^2[4(3^3 - 2^5) - (\sqrt{4} - 1^5)]$

18. $-2(-3 - 4 \cdot 5) - 4[6 + 3(-1)]$

Evaluate:

19. $xyz - xy$ if $x = -1$, $y = -3$, and $z = -2$

20. $m^2 + n^3 + \sqrt[a]{mn}$ if $m = 4$, $n = 2$, and $a = 3$

Test 25 (Lesson 100), Form A   **SHOW YOUR WORK**   Name: _____

1. Three times the opposite of a number is 40 greater than 5 times the number. What is the number?

2. The product of 7 and the opposite of a number is decreased by 28. If the resulting number is –35, what is the number?

3. On level ground, 24 kilometers can be traversed in 12 minutes. On the incline the speed is cut in half. How many kilometers can be traversed on the incline in 48 minutes?

4. Graph: $x \not> -5$

5. Eighty percent of what number is 128? Draw a diagram of the problem.

6. What number is 480 percent of 20? Draw a diagram of the problem.

7. Find the volume and surface area of a right solid whose base is shown on the left and whose sides are 8 inches high. Dimensions are in inches.
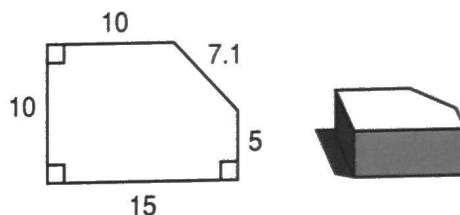
8. Use the cut and try method to find $\sqrt[3]{100}$ to one decimal place. Show your work.

9. If $2x + 3 = 9$, what is the value of $3x - 1$?

10. If $\frac{2}{3}x + 5 = 8$, what is the value of $\frac{1}{3}x + 3$?

Solve:

11. $-2x + 5 = 3x - 10$

12. $\dfrac{\frac{3}{4}}{\frac{1}{2}} = \dfrac{\frac{1}{3}}{x}$

13. $-2\frac{3}{4}x - 1\frac{2}{3} = \frac{7}{12}$

Simplify:

14. $-2^2 + (-3)^2$

15. $3[3^2(\sqrt{36} + \sqrt[3]{64}) - 5]$

16. $\dfrac{8 - 2(3 - 1) + 5 \cdot 2}{6(-3 + 7)}$

17. $2\frac{1}{4} \div 3\frac{1}{3} \times 2\frac{1}{3} \div 1\frac{1}{4}$

18. $-3(2 \cdot 7 - 3) - 4(3 \cdot 2 - 8) + \sqrt[3]{\frac{27}{64}}$
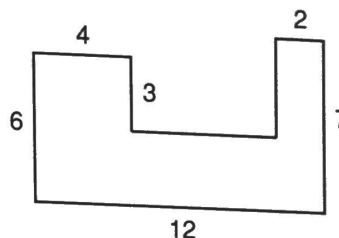
Evaluate:

19. $xy - x^2 - y$ if $x = -2$ and $y = -5$

20. $mnp - mp$ if $m = -3$, $n = -6$, and $p = -1$

Algebra 1/2   by Saxon

1. The ratio of happy students to sad students was 5 to 2. If 728 students were enrolled in the school, how many were happy?

2. Eight times a number is 54 greater than the opposite of the number. What is the number?

3. What percent of 48 is 108? Draw a diagram of the problem.

4. What number is 40 percent of 600? Draw a diagram of the problem.

5. Use the cut and try method to estimate $\sqrt[4]{45}$ to the nearest whole number.

6. If $5x - 7 = 10$, what is the value of $\frac{5}{8}x - 2$?

7. If $4x + 3 = 27$, what is the value of $2x - 6$?

8. Find (a) the perimeter and (b) the area of the figure shown. Dimensions are in feet. All angles are right angles.

9. Use the distributive property to multiply: $2m(m^2 - 3m + 4)$

10. Evaluate: $x - yz + xz$ if $x = -2$, $y = -3$, and $z = -1$

Solve:

11. $4x - 4 = 3x + 5$

12. $\dfrac{\frac{4}{5}}{\frac{3}{10}} = \dfrac{x}{\frac{1}{30}}$

13. $-2\frac{1}{3}x + \frac{1}{4} = -4\frac{1}{3}$

Simplify:

14. $-4^2 - (-3)^3$

15. $-[-(-5)] - (-6)^2$

16. $x^2y^3yxx^3xy^4y$

17. $\dfrac{3^2 - 3(1 - 2^3)(2^2 - 3)}{3(3^2 - 2^3)}$

18. $3\frac{1}{2} \div \frac{1}{4} \times 2\frac{1}{3} \div \frac{1}{3}$

Simplify by adding like terms:

19. $x^2 + 3x^2 - 2y^2 + 3x^2 + 6y^2$

20. $2a + 2ab + 4 + 5ba - a$

SHOW YOUR WORK   Name: _____

1. Due to the rainy weather only four-ninths of the anticipated participants showed up for the rally. If 284 participated in the rally, how many were anticipated?

2. Sixteen sessions cost $560. What would 38 sessions cost?

3. The brigade covered 15 miles in 5 hours during the desert heat. When night came they were able to double their speed. How many miles could they cover in 7 hours at night?

4. The product of a number and 4 is 33 greater than the product of the same number and 7. What is the number?

5. Graph: $x < -4$

6. Use the rate equations to solve: Twelve percent of what number is 168?

7. If 150 is increased by 90 percent, what is the resulting number? Draw a diagram of the problem.

8. What percent of 132 is 80? Draw a diagram of the problem.

9. If $7x + 4 = 39$, what is the value of $\frac{3}{5}x - 1$?

10. Use the distributive property to multiply: $3mn(2m + 3p + 4mn)$

11. Find the volume in cubic feet of the right solid whose base is shown on the left and whose height is 5 feet. Dimensions are in feet.
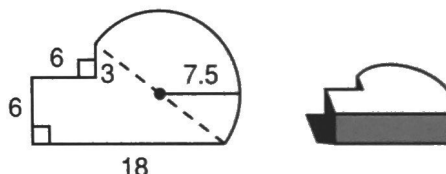
12. Find the lateral surface area of the right solid in problem 11.

Solve:

13. $3x - 13 = -x + 13$

14. $\dfrac{\frac{2}{5}}{-\frac{3}{4}} = \dfrac{x}{\frac{5}{6}}$

Simplify:

15. $\frac{1}{3^{-2}} - [-(-4)] + \sqrt[3]{-27}$

16. $x^2yxy^3xx^3y^2x^3yy^2$

17. $\dfrac{2^3 - 4(1 - 2^2)(1^5 - 2)}{2(2^2 - 3^2)}$

18. Use the method of cut and try to estimate $\sqrt[3]{450}$ to the nearest whole number.

19. Evaluate: $a^3 + \frac{m}{n} - m^2$ if $m = -6$, $n = -2$, and $a = -5$

20. Simplify by adding like terms: $2a^2 + 3m^2 - 5ma - 4m^2 + 2am + 4a^2$

1. Sixty percent of the horses were shod. If there were 240 horses on the ranch, how many of them were not shod?

2. The ratio of reds to greens is 5 to 11. There are 1024 marbles in the bucket. How many of them are green?

3. Because of the promotion, $2\frac{3}{4}$ times as many people attended than was normal. If the normal attendance was 6600, how many people attended?

4. If Darci deposited $3600 in the bank at 6 percent interest compounded annually, how much money would she have at the end of two years?

5. John bought a new golf putter for $42 after it had been marked down 30 percent. What was the original price?

6. One hundred sixty-five percent of what number is 1320? Draw a diagram of the problem.

7. If 70 is increased by 70 percent, what is the resulting number? Draw a diagram of the problem.

8. If $4x - 7 = 9$, what is the value of $\frac{7}{8}x + 3$?

9. Use the distributive property to multiply: $2x(x^2 + 2xy + y^2)$

10. Evaluate: $x^2y - xy$ if $x = -3$ and $y = -4$

Solve:

11. $-4x - 7 = -2x - 19$

12. $\dfrac{19}{\frac{1}{4}} = \dfrac{-3\frac{1}{6}x}{-1\frac{1}{2}}$

13. $-[-(3)(-4)] - [-(-5)] - 3^2 + \sqrt[3]{-125} + \sqrt{\frac{16}{25}}$

14. $aba^2a^3bb^3a^2b^4aba$

15. Find the volume in cubic inches of the right circular cylinder shown. Dimensions are in inches.
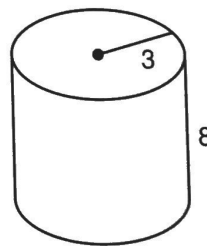
16. Find the total surface area of the right circular cylinder shown in problem 15.

17. Use Roman numerals to write each number: (a) 32   (b) 29

18. Write as a decimal without a fraction: $0.006\frac{1}{4}$

19. Write the percent as a decimal number: $12\frac{1}{2}\%$

20. Simplify by adding like terms: $xyx + 2yx^2 - x^2y + 4yxy$

1. Eighty percent of the student body were passing all their classes. If 300 students were failing at least one class, how many students were there in all?

2. Seventeen tries cost $51. How many tries could be made for $267?

3. The product of a number and 6 is decreased by 8. The result is 13 greater than the product of 4 and the same number increased by 3. What is the number?

4. The troop moved 60 miles into the woods in 4 hours. After leaving the woods the troop tripled its speed. How many hours did it take the troop to move 180 miles after leaving the woods?

5. Find the volume in cubic inches of a right solid whose base is shown on the left and whose height is 3 feet. Dimensions are in inches.

6. Use Roman numerals to write each number: (a) 44   (b) 17

7. What percent of 930 is 1674? Draw a diagram of the problem.

8. Use three unit multipliers to convert 576 cubic inches to cubic feet.

9. If $12x + 5 = 77$, what is the value of $\frac{2}{3}x - 9$?

10. Use the distributive property to multiply: $3xy(x^2 + x - xy - y^2)$

11. Simplify by adding like terms: $4x^2y + 3xxy - 2xyy - 10yx^2 - y^2x$

Solve:

12. $4x - 33 = 3x + 4$

13. $-1\frac{2}{3}x - \frac{1}{6} = 1\frac{2}{3}$

Simplify:

14. $3^2 + 3^3\left[-4(2^3 - 3^2)(3^2 - 2^3) - \sqrt[4]{16}\right]$

15. $4x^4yxy^3x^3y^4yx$

16. Evaluate: $m(m - n) + mn$ if $m = -2$ and $n = -5$

17. Graph: $x \nleq -1$

18. Write $12\frac{3}{8}\%$ as a decimal.

19. Name the complement of $32°$.

20. Use a protractor to draw a $60°$ angle. Then use a straightedge and compass to copy the angle.

Algebra 1/2   by Saxon

1. What is the probability of getting a number less than 5 on one roll of a six-sided die?

2. Find the difference between simple interest and interest compounded yearly on $6000 deposited in an account for 2 years at a yearly rate of 5 percent.

3. Twelve is subtracted from the product of a number and 3. The result was 6 more than the product of the same number and 5. What was the number?

4. The ratio of alpha rays to gamma rays is 5 to 8. If 26,169 rays are present, how many of them are alpha rays?

5. During the summer months the shop's business increased by sixty percent. If the shop did $400 a day worth of business before the summer months, how much business did the shop do during the summer months?

6. There were only three-eighths as many adults as there were children. If there were 24 adults present, how many children were present?

7. Write 2729 as a Roman numeral.

8. Thirty-six percent of what number is 252? Draw a diagram of the problem.

9. Write $72\frac{7}{8}\%$ as a decimal number.

10. Use three unit multipliers to convert 1700 cubic centimeters to cubic meters.

11. If $14x - 70 = 98$, find the value of $\frac{7}{12}x - 4$.

12. Use the distributive property to multiply: $5x^2y^5(x^3 + y^4 + x^7)$

13. Simplify by adding like terms: $x^2y^{-1} + 3xy^{-2}xy - 7x^{-2}y + 3x^{-2}y^{-1}x^4$

14. Find the volume of a right solid whose base is shown on the left and whose height is 0.4 feet. Dimensions are in feet.
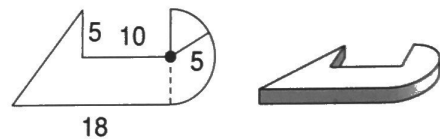
Solve:

15. $13x + 6 = 4x - 39$

16. $\dfrac{\frac{3}{4}}{3\frac{1}{3}} = \dfrac{x}{-\frac{1}{4}}$
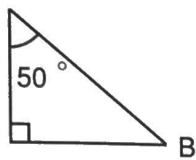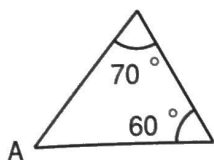
Simplify:

17. (a) 3^{-4} (b) $\frac{1}{2^{-3}}$

18. $4\frac{1}{5}\left(\frac{2}{3} \cdot \frac{5}{7} - 3\frac{1}{3} \cdot 3\right)$

19. $-(-3^2)(2) - [-(-1)^7] + (\sqrt[3]{-27})(-\sqrt{16})$

20. Evaluate: $x^2y - x^2(-x)$ if $x = -2$ and $y = -3$

Algebra 1/2   by Saxon

Test 31 (Lesson 124), Form A   SHOW YOUR WORK

Name: _____

1. A fair coin is tossed 4 times. What is the probability of getting HTTH in that order?

2. An employee's salary was increased by 20 percent. If his previous salary was $18,000, what is his new salary?

3. The ratio of short to tall was 3 to 5. If 768 trees are in the forest, how many of them are tall?

4. Four times a number is 35 less than the product of the same number and −3. What is the number?

5. Use a protractor to draw a 52° angle. Then use a straightedge and compass to copy the angle.

6. Find the measure of angles A and B:

7. Draw a line segment 5 inches long and then measure it to the nearest millimeter.

8. What percent of 230 is 575? Draw a diagram of the problem.

9. Use the distributive property to multiply: $3ax(2x^2 - 3ax^2 + 5x^4)$

10. Simplify by adding like terms: $2m^2n^3 - mnmn^2 + 5m^{-1}n^2m^3n$

11. Find the volume and the lateral surface area of a right solid whose base is shown on the left and whose height is 6 inches. Dimensions are in feet.
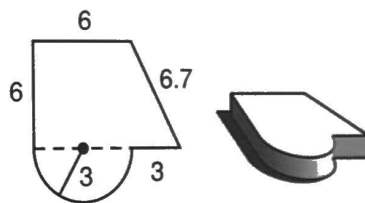
Solve:

12. $2x + 3 - 5x = 6x + 24$

13. $\frac{4}{3}x - 2\frac{1}{2} = -6\frac{1}{4}$

Simplify:

14. $-3^4x^2y^3x^{-5}yx(-1)^3x^3y^{-1}$

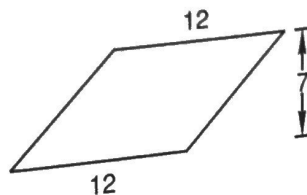15. $\frac{1}{4} \div \frac{1}{5} \div 2\frac{1}{2} \times 4\frac{1}{5}$

16. $\dfrac{-(-3)^2 - 3^2(5 - 2 \cdot 3)}{-2^2(3^2 - \sqrt{64})}$

17. Evaluate: $x^{-2}y^3$ if $x = -5$ and $y = -3$

18. If $5x - 8 = 22$, what is the value of $\frac{5}{9}x + \frac{2}{3}$?

19. Forty-three percent of what number is 4.3?

20. Find the area of the parallelogram. Dimensions are in centimeters.


Algebra 1/2   by Saxon

1. A card is drawn from a standard 52-card deck and then replaced, and then a second card is drawn. What is the probability that a heart is drawn and then a king, in that order?

2. The ratio of spectators to vendors was 23 to 3. If 1950 are in attendance, how many vendors are there?

3. The product of a number and 5 is 46 greater than the product of the same number and 3. What is the number?

4. Draw a line segment and a point outside the line. Construct a line through the point that is perpendicular to the segment.

5. Use a protractor to draw a 100° angle. Then use a straightedge and a compass to construct the bisector of the angle.

6. If 300 is increased by $37\frac{1}{2}\%$, what is the resulting number? Draw a diagram of the problem.

7. Use six unit multipliers to convert 6 cubic yards to cubic inches.

8. Find side y:
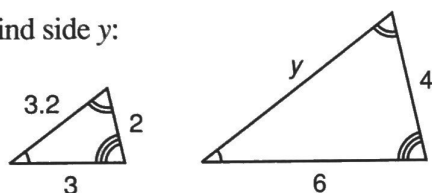
9. If $7x - 3 = 25$, what is the value of $\frac{3}{4}x - 9$?
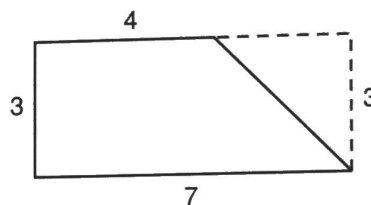
10. Find the area of the trapezoid. Dimensions are in feet.

11. Use the distributive property to multiply: $m^2n(3mn + m - 2m^{-1}n^2)$

12. Simplify by adding like terms: $6xy^2z^3 + xy^3z - x^2yz^3yx^{-1}$

13. Evaluate: $\sqrt[x]{y} - (xy)^{-1}$ if $x = 3$ and $y = -8$

Solve:

14. $12x + 5 - 3x - 3 = 6x - 25$

15. $\dfrac{\frac{1}{3}}{-\frac{3}{10}} = \dfrac{\frac{4}{9}}{x}$
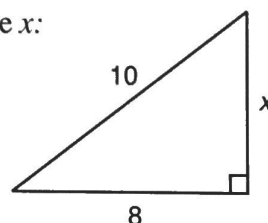
Simplify:

16. (a) $\dfrac{1}{4^{-2}}$

    (b) -3^{-3}

17. $5(8 - 3 \cdot 5) + \dfrac{1}{2^{-3}} + \left[-(-4)^2\right]$

18. $2\frac{1}{3}\left(1\frac{1}{2} \cdot 4\frac{1}{2} - \frac{1}{5} \cdot \frac{5}{7}\right)$

19. Construct a triangle whose sides are 2 inches, 3 inches, and 4 inches.

20. Find side x:

Algebra 1/2   **by Saxon**

1. When the battle was over, the ratio of those standing to those who had fallen was 9 to 4. If 3978 began the battle, how many had fallen?

2. The product of a number and -7 increased by 13 is 53 more than the product of 4 and the number. What is the number?

3. The number of students taking the class increased 250 percent. If there are 70 students in the class, how many were there in the beginning?

4. A single die is rolled three times. The first two tries are both six. What is the probability of the third try being a six?

5. What base 10 number does 10101 (base 2) represent?

6. What percent of 140 is 112? Draw a diagram of the problem.

7. Find the volume in cubic inches of a right solid whose base is shown on the left and whose height is 2 feet. Dimensions are in inches.
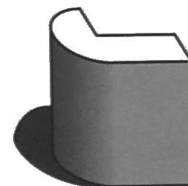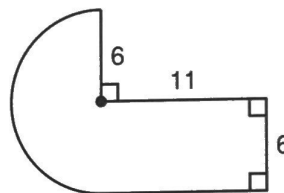
8. If $8x + 3 = -1$, what is the value of $4x + 2$?

9. Use the distributive property to multiply: $mn^2\left(m^2 + m^2n + \dfrac{3m}{4n^2}\right)$

10. Simplify by adding like terms: $2ab^2c + 3ac^2 - cac + bcba$

11. Use the cut and try method to estimate $\sqrt{67}$ to one decimal place.

12. Evaluate: $-3mn + 2m^2$ if $m = -2$ and $n = -1$

Solve:

13. $4x + 6 = -2x + x - 19$

14. $\dfrac{-\dfrac{1}{4}}{\dfrac{9}{16}} = \dfrac{x}{\dfrac{9}{16}}$

Simplify:

15. $-[-(-3)^2] - 3$

16. $5x^2yy^3xy^2x^3xy$

17. $\dfrac{-2^3 - 2^2(3 - 2^2)}{(-2)^3 - (-2)^2}$

18. Use a protractor to draw an 80° angle. Then use a straightedge and a compass to copy the angle.

19. Convert 43,281,065 milliliters to liters.

20. Use a ruler to draw a line segment 13 centimeters long. Construct a perpendicular to the line at a point 5 centimeters from the right endpoint.

Algebra 1/2   by Saxon

Test 34 (Lesson 136), Form A   **SHOW YOUR WORK**   Name: _____

1. The urn contained 40 marbles: 12 were white, 18 were red, and 10 were blue. One marble was drawn and then put back. Then a second marble was drawn. What is the probability that both marbles were blue?

2. Forty percent of the voters did not like the candidate. If 8418 voters liked the candidate, how many voters were there?

3. The ratio of yellers to screamers was 6 to 11. If 476 were in the hall, how many of them were yellers?

4. Graph each point on a rectangular coordinate system: (a) $(3, -2)$ (b) $(-3, 0)$ (c) $(-2, 2)$

5. Construct a triangle whose sides are 4 cm, 6 cm, and 3 cm.

6. Convert 10110110 (base 2) to base 10.

7. Thirty percent of what number is 183? Draw a diagram of the problem.

8. Use six unit multipliers to convert 24,000,000 cubic inches to cubic yards.

9. If $12x - 7 = -1$, what is the value of $4x + 3$?

10. Evaluate: $mp^2 - m^3$ if $m = -3$ and $p = -2$

Solve:

11. $6x + 2 - 3x = -7 - 2x - x + 12$
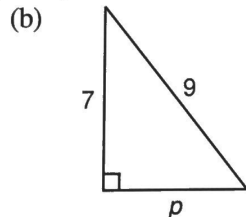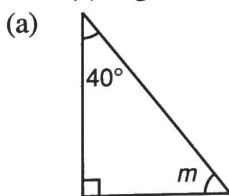
12. $-4\frac{1}{2}x + 3\frac{1}{3} = 7\frac{1}{4}$

Simplify:

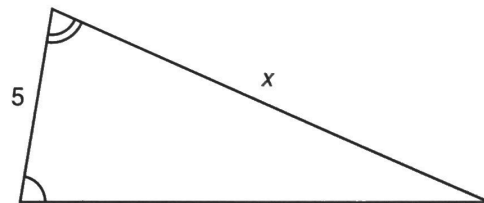13. (a) $(-3)^{-4}$ (b) $\frac{1}{-3^{-4}}$

14. $\frac{(-1)^9 - 3(2^3 - 3 \cdot 5)}{2(\sqrt[3]{-27} + 3^2)}$

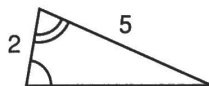15. $\frac{3}{7}\left(2\frac{1}{3} \cdot \frac{1}{5} - \frac{1}{4} \cdot \frac{3}{5}\right)$

16. Find (a) angle m and (b) side p:

    (a)

    (b)

17. Use a protractor to draw a 103° angle. Then use a straightedge and a compass to bisect the angle.
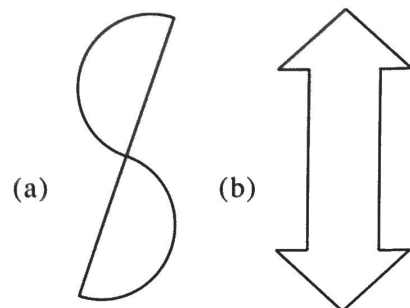
18. Find side x:

19. (a) How many ways can 6 objects be arranged in a row?
   (b) How many ways can 4 of the 6 objects be arranged in a row?

20. Sketch the figures and draw in the lines of symmetry. Which figure is symmetrical about a point?

    (a)   (b)

Algebra 1/2 by Saxon

SHOW YOUR WORK

Name: _____

1. Use the rules of divisibility to tell if 71,655 is divisible by:
   (a) 3
   (b) 5

2. Divide (round the answer to two decimal places): $\dfrac{431.25}{61}$

3. Simplify mentally:
   (a) 81,464 ÷ 1000
   (b) 11.2836 × 100

4. Write $\dfrac{6}{15}$ as a fraction with a denominator of 20.

5. Write $\dfrac{720}{2000}$ as a product of prime factors and simplify.

6. Use words to write the number 7821.8218.

7. The average time for four 400-meter runs was 53.4 seconds. If the first run was 52.7 seconds, the second run was 53.3 seconds, and the third run was 54.1 seconds, what was the time for the fourth run?

8. What number is $\dfrac{7}{13}$ of 143?

9. Write $\dfrac{107}{13}$ as a mixed number.

10. Find the least common multiple of 16, 21, and 24.

11. Simplify: $6\dfrac{3}{4} \cdot 3\dfrac{1}{2} \div 3\dfrac{3}{5} \div 3\dfrac{3}{4}$

12. Use four unit multipliers to convert 630 square yards to square inches.

13. Joey hid them in bunches of 24. In all he hid 503 bunches. How many did he hide in all?

14. Simplify: 2631.28 − 37.198

15. What decimal part of 560 is 70?

16. Patton's troops covered the first 48 miles in 4 hours. He then increased the speed by 8 miles per hour. If the total distance of the trip was 108 miles, how long did it take to finish the trip?

17. Solve: $\dfrac{\frac{6}{7}}{\frac{12}{21}} = \dfrac{4}{x}$

18. Complete the table. Begin by inserting the reference numbers.

Fraction	Decimal	Percent
(a)	(b)	68

19. Find (a) the perimeter and (b) the area of this figure. Dimensions are in yards.

Algebra 1/2 by Saxon

SHOW YOUR WORK Name: _____
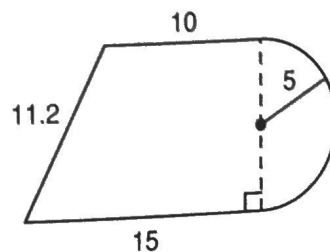
20. Round 0.0004567 to the nearest millionth and write the rounded number in scientific notation.

21. Evaluate: $mp + \sqrt[p]{x} + m^p$ if $m = -4$, $p = 3$, and $x = -64$

22. Simplify: 218.9×0.0031

23. Solve: $7\frac{1}{8}x + 2\frac{7}{10} = 3\frac{2}{5}$

24. The ratio of big spenders to tightwads was 5 to 2. If 2100 were big spenders, how many were there in all?
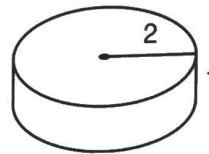
Simplify:

25. $\sqrt[3]{-8} + \sqrt{4}[(-2^3 - 4)3 - (-1)^7]$

26. $\frac{1}{6}\left(2\frac{1}{3} \cdot \frac{1}{2} - \frac{3}{4}\right) + \frac{5}{24}$

27. Graph: $x \geq 2$

28. What number is 160 percent of 90? Draw a diagram of the problem.

29. The number of leaves on the ground increased 240 percent during the wind storm. If 2700 leaves were on the ground before the storm, how many were on the ground after the storm?

30. Find the volume and surface area of the right circular cylinder shown. Dimensions are in feet.

31. Simplify: $4 - 3(5) - 7(-6) - 4\left(\dfrac{20}{-4}\right)$

32. Find (a) the volume and (b) the lateral surface area of a rectangular solid whose length, width, and height measure 12 inches, 10 inches, and 3 inches respectively.

33. Use the method of cut and try to find $\sqrt{20}$ to one decimal place. Show your work.

34. A number was multiplied by -4 and increased by -6. If the final result was -34, what was the number?

35. Five times a number is 49 greater than the product of 2 and the opposite of the number. What is the number?

36. If $4x + 2 = 11$, what is the value of $2x - 1$?

37. Simplify by adding like terms: $yx^2 + xyx + 3y^2x + 2yxy$

38. Use the distributive property to multiply: $3mn^2(m + mny + 3m^2)$
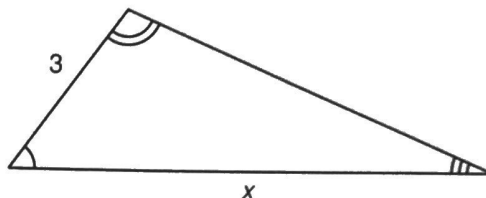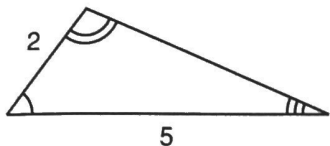
39. Simplify: $m^2p^2pm^3p^3p$

40. Write the Roman numeral for 29.

Algebra 1/2 **by Saxon**

41. If Shirley put $4000 in the bank at 6 percent interest compounded annually, how much money would she have at the end of 2 years?

42. Simplify: $-\dfrac{1}{3^{-3}} - [-(-2^2)] + \sqrt[3]{-27}$

43. Use a protractor to draw an 80° angle. Then use a straightedge and a compass to copy the angle.
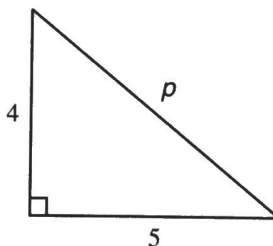
44. Find x:

45. Solve: $8x - 2 - x - 4x = -3x + 14$

46. Draw a segment 6 centimeters long. Construct a perpendicular to the line at a point 2 centimeters from the right endpoint.
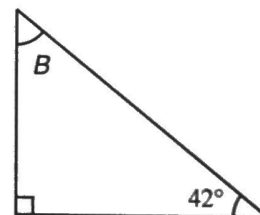
47. A single die is rolled twice. What is the probability that the first roll will be a 6 and the second roll will be a 2?

48. Find (a) side p and (b) angle B: (a)   (b)

49. Write 75 (base 10) using base 2 numerals.

50. Graph: (a) $(4, -3)$ (b) $(-3, 0)$

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