Name: _____ Class: _____ Date: _____ ID: A

Review Semeter 8th Grade

Short Answer

Graph the figure with the given vertices. Then, graph the reflection over the given axis, and write the coordinates of the image's vertices.

1. triangle ABC with vertices $A(4, -2)$, $B(7, -4)$, and $C(2, -3)$; y-axis
   Take this first reflection, and reflect it about the x-axis.

2. parallelogram $QRST$ with vertices $Q(-5, 6)$, $R(-2, 5)$, $S(-2, 0)$, and $T(-5, 1)$; x-axis

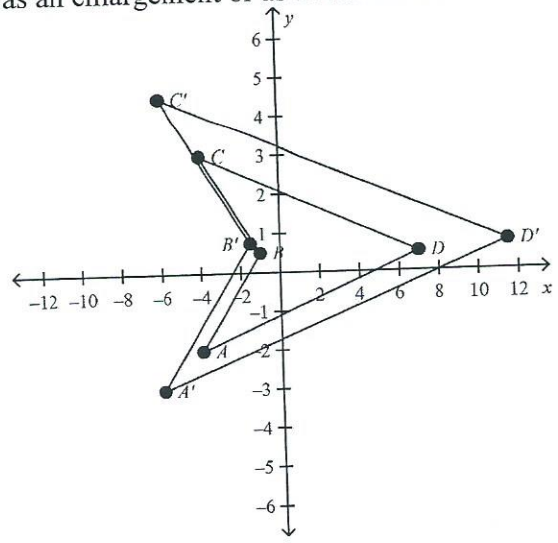
3. polygon *ABCDEF* with vertices *A*(–4, –1), *B*(–3, –2), *C*(–2, –1), *D*(–2, –5), *E*(–3, –6), *F*(–4, –5); *x*-axis

4. The table shows six popular sports according to the results of a survey. Find the decimal value of those who liked each sport. Thenfind the decimal value of those who liked volleyball and basketball.

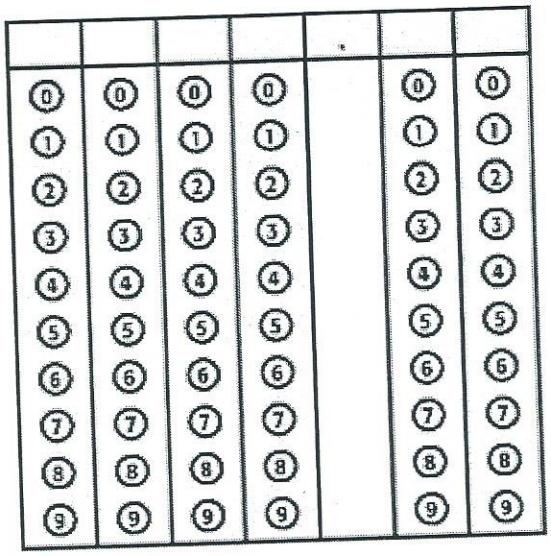
Sport	Fraction
Baseball	$\frac{5}{8}$
Soccer	$\frac{3}{4}$
Football	$\frac{3}{8}$
Basketball	$\frac{2}{3}$
Volleyball	$\frac{2}{7}$
Tennis	$\frac{1}{5}$

Name: _____

5. On the graph, one figure is a dilation of the other. Find the scale factor of each dilation, and classify it as an enlargement or as a reduction.



6. If a train is traveling at a rate of 140 miles per hour, how many miles will it travel in $2\frac{1}{4}$ hours?



Name: _____

7. Kenton started an intense exercise program last week, and he recorded the amount of time he spent exercising. Express his total exercise time for the week in terms of hours and minutes.

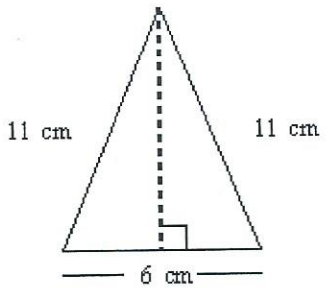
Day	Time (hours)
Monday	$\frac{5}{6}$
Tuesday	$1\frac{1}{4}$
Wednesday	$1\frac{1}{2}$
Thursday	$\frac{3}{4}$
Friday	2

8. Christa is going to enter a baking contest. She would like to make a total of 5 pies so she can choose the best one as her entry. If Christa's crust recipe calls for $2\frac{1}{4}$ cups flour, and she has 12 cups of flour, does she have enough to make 5 pies? If so, how much, if any, flour will she have left?

9. Find the vertices of polygon $A'B'C'D'$ after polygon $ABCD$ is dilated using the given scale factor. Graph polygon $ABCD$ and polygon $A'B'C'D'$.

$A(1, 3)$, $B(1, 6)$, $C(4, 6)$, $D(5, 2)$; scale factor $\frac{1}{2}$

10. The height of the isosceles triangle divides the base in half. If the legs are 11 and the entire base is 6, what is the height of this isosceles triangle?



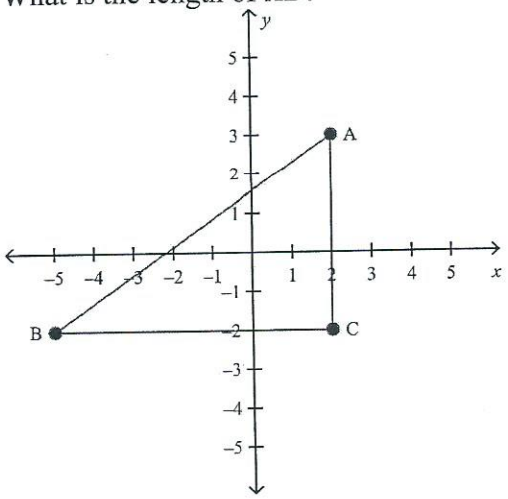
11. The school assembly was performed by $\frac{2}{3}$ of the Jazz band, $\frac{4}{5}$ of the Drama Club, and by $\frac{5}{8}$ of the Orchestra. Which group had the greatest part of its group perform at the assembly?

12. Mrs. Anderson's class went to get creamy whip. Mrs. Anderson bought each student one ice cream cone. $\frac{3}{4}$ of her class ordered orange/vanilla swirl, and $\frac{2}{3}$ of her class ordered chocolate. What is wrong with this question?

13. Alex is making some trail mix for his scouting hike. He mixes together the ingredients in the table. How much total trail mix does he have when he is finished combining the ingredients?

Ingredients	Amount
Pretzels	$1\frac{3}{4}$ c
Raisins	$1\frac{1}{4}$ c
Cereal	$2\frac{1}{4}$ c
Nuts	$\frac{3}{4}$ c
Chocolate Candies	1 c

14. A right triangle is graphed on a coordinate grid. What is the length of $\overline{AB}$?



In Exercises 41-45, evaluate the expressions. Express answers in simplest form.

15. $a^4 \cdot b^2$, if $a = 2$ and $b = 4$.

16. A building casts a shadow that is 15 meters in length. The distance from the top of the building to the top of the shadow is 25 meters. What the height of the building?

17. The table shows the records of this season's sports teams at Bakersfield Community College. Which team had the best overall record? (Hint: divide the number of games or matches won in a particular sport by the total number of games or matches played in that sport). Round your answers to the nearest hundredth.

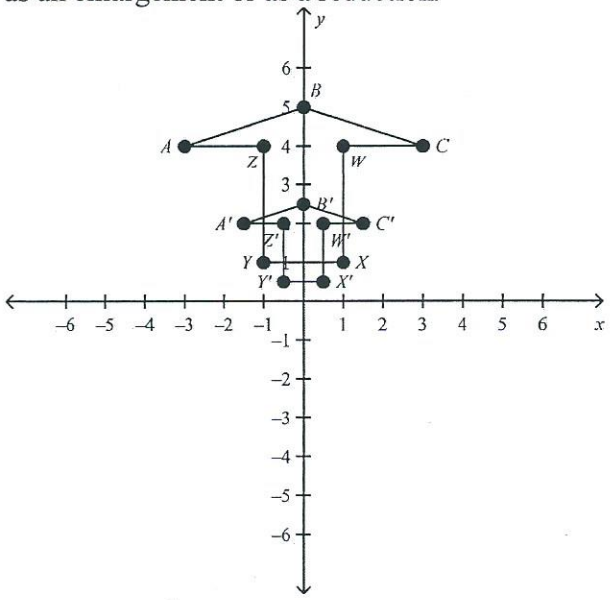
Team	Games Won	Total Number Games Played
Wrestling	19	25
LaCrosse	11	14
Football	7	10
SoftballL	12	16

18. Phyllis is going to make her own drapes. She has a total of 10 windows that will each require $2\frac{1}{3}$ yards of fabric each. At the fabric store, there is a bolt of fabric she likes with $20\frac{3}{4}$ yards of fabric on it. Will this be enough fabric for all 10 windows? If so, how much, if any will be left? If not enough, then how many windows will this cover?

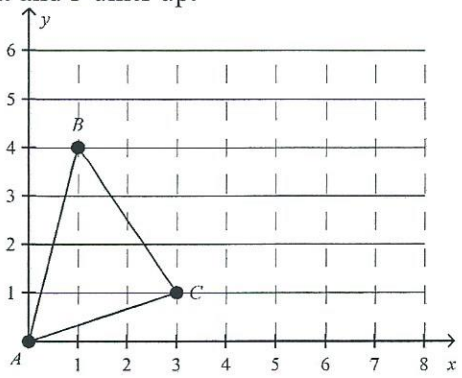
19. At sea level, Mercury freezes at –38.87°C. The freezing point for Butane is about 100 degrees colder than the freezing point of Mercury. What is the approximate freezing point for Butane? Justify your answer with a number line.

20. Josè wants to bake cinnamon coffee cakes to give as gifts to his teachers at the end of the school year. Each coffee cake requires $\frac{1}{4}$ cup cinnamon. How many coffee cakes can he make with $1\frac{1}{2}$ cups cinnamon? How much, if any, cinnamon will he have left?

21. On the graph, one figure is a dilation of the other. Find the scale factor of each dilation and classify it as an enlargement or as a reduction.



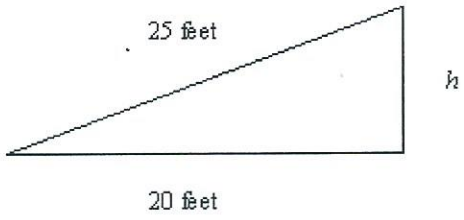
22. Copy the figure onto graph paper. Then draw the image of the figure after a translation of 4 units right and 3 units up.



23. A flower garden is designed with 6 flowers in the first row, 10 flowers in the 2nd row, 14 flowers in the 3rd row, and so on. How many flowers are in the eighth row?

24. Sue is making a pasta salad to bring to her neighborhood block party. She is going to make a triple batch of the pasta. Her recipe calls for $\frac{3}{4}$ cup olive oil. How many 15 oz. bottles of olive oil does she need to purchase?

25. What is the height of the ramp?



26. Find the vertices of polygon $W'X'Y'Z'$ after polygon $WXYZ$ is dilated using the given scale factor. Graph polygon $WXYZ$ and polygon $W'X'Y'Z'$.
$W(-2, -1)$, $X(-2, 3)$, $Y(0,4)$, $Z(0, 0)$; scale factor 2

27. Find the area of the rectangle with a width of $5\frac{1}{2}$ inches and a perimeter of $20\frac{1}{2}$ inches.

The formula for the perimeter of a square is $P = 4s$, where s is the length of a side. Find the perimeter of each square.

28.

Area = 256 square millimeters

Multiple Choice
Identify the choice that best completes the statement or answers the question.

29. Which of the following expressions represents the verbal phrase *$5 tip added to a lunch bill*?
    a. $b \div 5$
    b. $b \times 5$
    c. $b - 5$
    d. $b + 5$

30. The table shows the portion of Texas' manufacturing economy that is made up of different industries. Which of the following shows these portions in order from least to greatest?

Industry	Portion
Food	$\frac{12}{125}$
Machinery	0.124
Chemicals	$\frac{11}{65}$

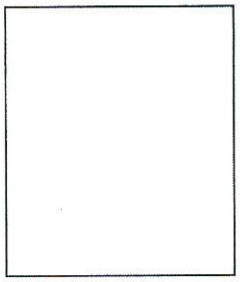
    a. $\frac{12}{125}, \frac{11}{65}, 0.124$
    b. $\frac{12}{125}, 0.124, \frac{11}{65}$
    c. $0.124, \frac{12}{125}, \frac{11}{65}$
    d. $0.124, \frac{11}{65}, \frac{12}{125}$

Evaluate each expression.

31. $9+(18+5)\cdot 2-2^2 \div 2$
    a. 66
    b. 39
    c. 29
    d. 53

32. $9-30\cdot 6$
    a. 15
    b. 4
    c. –126
    d. –171

33. If the length and width of a field are scaled by a factor of 1.5, by what factor will the area of the field increase?



    a. 1.5
    b. 2
    c. 2.25
    d. 3

34. The JP Morgan Chase Tower in Houston is the tallest building in Texas. The table below shows the heights of different floors of the building. If there are 75 floors altogether, how tall is the building?

Floor	Height (ft)
5	66.8
10	133.6
15	200.4
20	267.2
25	334

    a. 974 ft
    b. 1,002 ft
    c. 1,015 ft
    d. 1,120 ft

Add.

35. $-31 + 54$
    a. 13
    b. 85
    c. 23
    d. –85

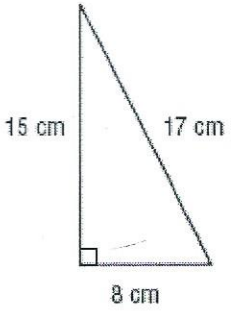
Evaluate each expression if $a = 3$, $b = 3$, and $c = 9$.

36. $2a(b^2 - 2b) - 3c$
    a. 32
    b. –9
    c. 21
    d. 45

37. $3a - 9b - c$
    a. –21
    b. –9
    c. 8
    d. –27

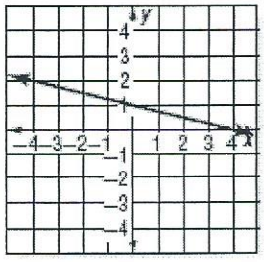
38. A carpenter determines the length of a beam to be $\sqrt{45}$ feet. Between which two integers does this length lie on a number line?
    a. Between 6 and 7 feet
    b. Between 7 and 8 feet
    c. Between 8 and 9 feet
    d. Between 9 and 10 feet

39. Suppose the right triangle is dilated by a scale factor of 1.8. What will the length of the hypotenuse be in the dilated figure?



    a. 30.6 cm
    b. 27 cm
    c. 14.4 cm
    d. 9.4 cm

40. What is the equation of the linear function shown below?



    a. $y = x - 1$
    b. $y = \frac{1}{4}x + 1$
    c. $y = -x - 1$
    d. $y = -\frac{1}{4}x + 1$

41. How can you write $3\frac{4}{9}$ as a decimal?
    a. 3.4
    b. 3.4444...
    c. 3.5
    d. 3.5555...

Use the information and table below to answer the following questions.

Each week, Angela increases the amount of time she spends running. The times for each of the first few weeks are shown in the table.

Week	Time Running
1	8 min
2	10 min
3	12 min
4	14 min
5	16 min
6	18 min

42. How many minutes will Angela run during week 10 if she continues increasing her times according to the pattern?
    a. 22 min
    b. 24 min
    c. 26 min
    d. 28 min

Name: _____

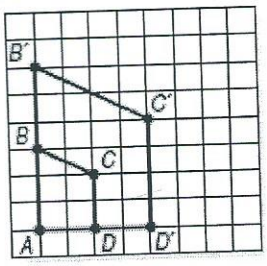
43. Which expression can be used to find how long she will run during week w?
    a. $2w + 8$
    b. $3w$
    c. $3w + 5$
    d. $2w + 6$

44. Which symbol will make a true number sentence when placed in the blank below?
    $-4.\overline{58}$ _____ $-4.5\overline{8}$

    a. $<$
    b. $>$
    c. $=$
    d. $+$

45. The population of Texas is about 22,490,000 people. How can you write this number using scientific notation?
    a. 2.249×10^5
    b. 2.249×10^6
    c. 2.249×10^7
    d. 22.49×10^8

46. What scale factor was used to dilate quadrilateral $ABCD$?



    a. 0.5
    b. 1.5
    c. 2
    d. 2.5

Write each fraction as a decimal.

47. $\frac{1}{6}$
    a. 0.16
    b. $0.8\overline{3}$
    c. 6
    d. $0.1\overline{6}$

48. $-\frac{5}{8}$
    a. -0.625
    b. 0.625
    c. -0.58
    d. -1.6

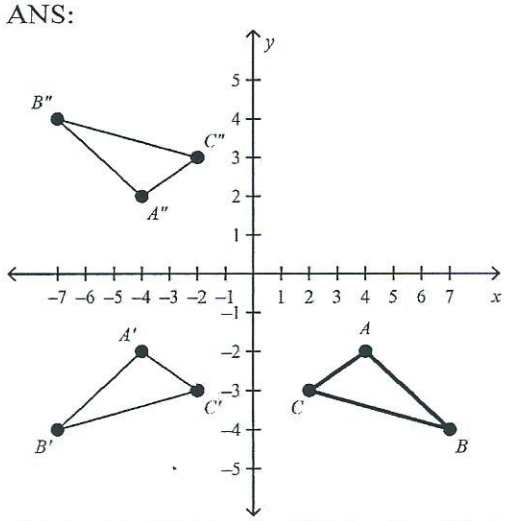
49. What are the coordinates of the point that is 5 units to the right and 3 units below the origin?
    a. $(3, -5)$
    b. $(-3, 5)$
    c. $(5, -3)$
    d. $(-5, 3)$

50. How can you write 0.0000075 in scientific notation?
    a. 7.5×10^{-5}
    b. 7.5×10^{-6}
    c. 7.5×10^{-7}
    d. 7.5×10^{-8}

Review Semeter 8th Grade
Answer Section

SHORT ANSWER

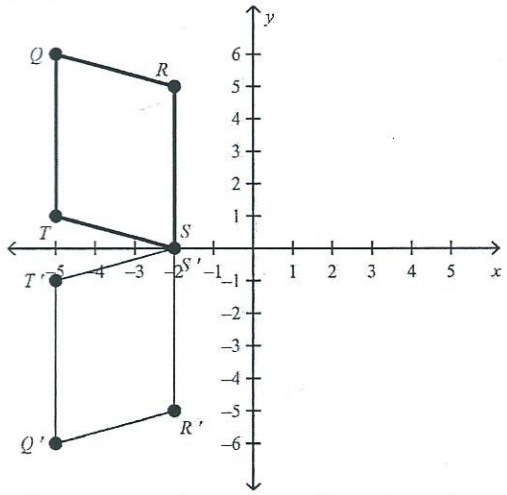
1. ANS:



$A'(-4, -2), B'(-7, -4), C'(-2, -3), A''(-4, 2), B''(-7, 4), C''(-2, 3)$

PTS: 1 DIF: Advanced REF: Lesson 6-6 OBJ: 6-6.2 Solve multi-step problems.
STA: 8.6(B) | 8.7(B) TOP: Solve multi-step problems.
KEY: Multi-step | Problem solving

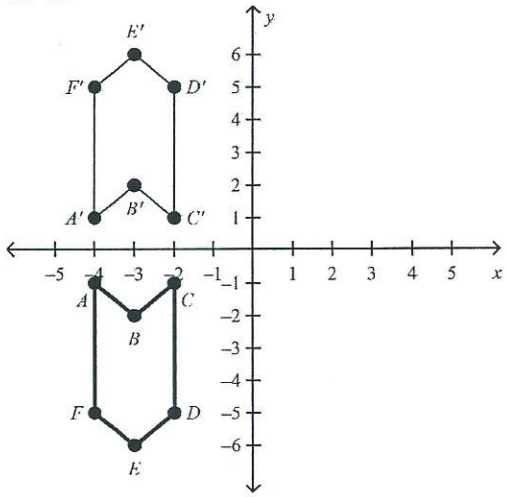
2. ANS:



$Q'(-5, -6),\ R'(-2, -5), S'(-2, 0), T'(-5, -1)$

PTS: 1 DIF: Average REF: Lesson 6-6 OBJ: 6-6.2 Solve multi-step problems.
STA: 8.6(B) | 8.7(B) TOP: Solve multi-step problems.
KEY: Multi-step | Problem solving

3. ANS:



$A'(-4, 1), B'(-3, 2), C'(-2, 1), D'(-2, 5), E'(-3, 6), F'(-4, 5)$

PTS: 1 DIF: Advanced REF: Lesson 6-6 OBJ: 6-6.2 Solve multi-step problems.
STA: 8.6(B) | 8.7(B) TOP: Solve multi-step problems.
KEY: Multi-step | Problem solving

4. ANS:

Baseball = $\frac{5}{8}$ or 0.625; Soccer = $\frac{3}{4}$ or 0.75; Football = $\frac{3}{8}$ or 0.375; Basketball = $\frac{2}{3}$ or 0.67;

Volleyball = $\frac{2}{7}$ or 0.29; Tennis = $\frac{1}{5}$ or 0.2.

The decimal value of those who liked volleyball and basketball = 0.67 + 0.29 = 0.96

PTS: 1 DIF: Advanced REF: Lesson 2-1 OBJ: 2-1.4 Solve multi-step problems.
STA: 7.1(B) TOP: Solve multi-step problems. KEY: Multi-step | Problem solving

5. ANS:

scale factor = $\frac{3}{2}$; enlargement

$A(-4, -2) \rightarrow A'(-6, -3)$

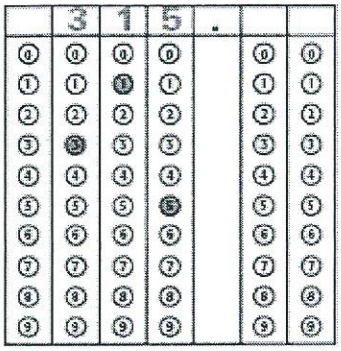
$B\left(-1, \frac{1}{2}\right) \rightarrow B'\left(\frac{-3}{2}, \frac{3}{4}\right)$

$C(-4, 3) \rightarrow C'\left(-6, \frac{9}{2}\right)$

$D\left(7, \frac{1}{2}\right) \rightarrow D'\left(\frac{21}{2}, \frac{3}{4}\right)$

PTS: 1 DIF: Advanced REF: Lesson 4-6 OBJ: 4-6.2 Solve multi-step problems.
STA: 8.1(B) | 8.6(A) | 8.6(B) | 8.10(A) TOP: Solve multi-step problems.
KEY: Multi-step | Problem solving

6. ANS:



PTS: 1 STA: 8.3(B)

7. ANS:
6 hours and 20 minutes

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

$(1 + 1 + 2) + \left(\frac{5}{6} + \frac{1}{4} + \frac{1}{2} + \frac{3}{4}\right) =$

$4 + \left(\frac{10+3+6+9}{12}\right) = 4 + \frac{28}{12} = 4 + 2\frac{4}{12} = 4 + 2\frac{1}{3} = 6\frac{1}{3}$ hr

Convert to an answer with hours and minutes: 6 hours 20 minutes

PTS: 1 DIF: Average REF: Lesson 2-5 OBJ: 2-5.5 Solve multi-step problems.
STA: 8.2(B) TOP: Solve multi-step problems. KEY: Multi-step | Problem solving

8. ANS:
Yes; $\frac{3}{4}$ cup left

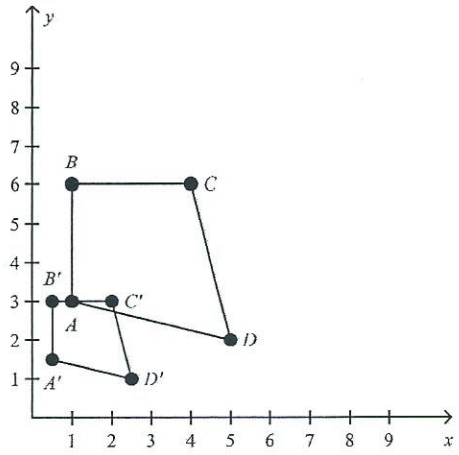
Find how much flour she needs. $2\frac{1}{4} \cdot 5 = 11\frac{1}{4}$

Subtract this difference from the 12 cups of flour she has. $12 - 11\frac{1}{4} = \frac{3}{4}$

PTS: 1 DIF: Average REF: Lesson 2-4 OBJ: 2-4.3 Solve multi-step problems.
STA: 8.2(B) TOP: Solve multi-step problems. KEY: Multi-step | Problem solving

9. ANS:

$A'\left(\frac{1}{2}, \frac{3}{2}\right), B'\left(\frac{1}{2}, 3\right), C'(2, 3), D'\left(\frac{5}{2}, 1\right)$



PTS: 1 DIF: Advanced REF: Lesson 4-6 OBJ: 4-6.2 Solve multi-step problems.
STA: 8.1(B) | 8.6(A) | 8.6(B) | 8.10(A) TOP: Solve multi-step problems.
KEY: Multi-step | Problem solving

10. ANS:

About 10.6 cm; use the Pythagorean Theorem $a^2 + b^2 = c^2$. Substitute $\frac{6}{2}$ or $3 = a$ and $11 = c$.

$3^2 + b^2 = 11^2$

$b^2 = 112$

$b = \sqrt{112}$

≈ 10.6

PTS: 1 DIF: Average REF: Lesson 3-5 OBJ: 3-5.2 Solve multi-step problems.
STA: 8.7(C) | 8.9(A) TOP: Solve multi-step problems.
KEY: Multi-step | Problem solving

11. ANS:

Drama Club

Convert each fraction to its decimal equivalent, and then compare their values.

$\frac{2}{3} = 0.\overline{6}$; $\frac{4}{5} = 0.80$; $\frac{5}{8} = 0.625$

The largest of the three is 0.80 (the Drama Club).

PTS: 1 DIF: Average REF: Lesson 2-2 OBJ: 2-2.3 Solve multi-step problems.
STA: 8.1(A) TOP: Solve multi-step problems. KEY: Multi-step | Problem solving

12. ANS:
$\frac{3}{4} + \frac{2}{3}$ or $0.75 + 0.67 = 1.42$, which is the same as 142%.

This is more than 100% or all of her class! The two fractions stated in the problem should add up to a sum of 1 or 100%, assuming each student orders one cone.

PTS: 1 DIF: Advanced REF: Lesson 2-2 OBJ: 2-2.3 Solve multi-step problems.
STA: 8.1(A) TOP: Solve multi-step problems. KEY: Multi-step | Problem solving

13. ANS:
7 cups

$$1\tfrac{3}{4} + 1\tfrac{1}{4} + 2\tfrac{1}{4} + \tfrac{3}{4} + 1 = (1 + 1 + 2 + 1) + \left(\tfrac{3}{4} + \tfrac{1}{4} + \tfrac{1}{4} + \tfrac{3}{4}\right) = 5 + \tfrac{8}{4} = 5 + 2 = 7 \text{ cups}$$

PTS: 1 DIF: Average REF: Lesson 2-5 OBJ: 2-5.5 Solve multi-step problems.
STA: 8.2(B) TOP: Solve multi-step problems. KEY: Multi-step | Problem solving

14. ANS:
About 8.6 units; use the Pythagorean Theorem $a^2 + b^2 = c^2$. Substitute 7 for a and 5 for b.

$$7^2 + 5^2 = c^2$$
$$74 = c^2$$
$$\sqrt{74} = c$$
$$8.6 \approx c$$

PTS: 1 DIF: Average REF: Lesson 3-7 OBJ: 3-7.3 Solve multi-step problems.
STA: 8.7(D) | 8.9(A) TOP: Solve multi-step problems.
KEY: Multi-step | Problem solving

15. ANS:
256
$a^4 = 2^4 = 16$; $b^2 = 4^2 = 16$
$a^4 \cdot b^2 = 16 \cdot 16 = 256$

PTS: 1 DIF: Basic REF: Lesson 2-9 OBJ: 2-9.3 Solve multi-step problems.
STA: 8.2(B) TOP: Solve multi-step problems. KEY: Multi-step | Problem solving

16. ANS:
20 meters high; use the Pythagorean Theorem $a^2 + b^2 = c^2$. Substitute 15 for a and 25 for c.

$$15^2 + b^2 = 25^2$$
$$b^2 = 400$$
$$b = \sqrt{400}$$
$$b = 20$$

PTS: 1 DIF: Advanced REF: Lesson 3-5 OBJ: 3-5.2 Solve multi-step problems.
STA: 8.7(C) | 8.9(A) TOP: Solve multi-step problems.
KEY: Multi-step | Problem solving

17. ANS:

The best overall record was the LaCrosse team with a winning record of $\frac{11}{14} = 0.79$, or 79%.

The wrestling team's record was $\frac{11}{14} = 0.76$, or 76% winning record.

The football team's record was $\frac{7}{10} = 0.70$, or 70% winning record.

The softball team's record was $\frac{12}{16} = 0.75$, or 75%winning record .

PTS: 1 DIF: Average REF: Lesson 2-2 OBJ: 2-2.3 Solve multi-step problems.
STA: 8.1(A) TOP: Solve multi-step problems. KEY: Multi-step | Problem solving

18. ANS:

Phyllis will have enough fabric for 8 windows, but not 10.

Multiply $2\frac{1}{3}$ by $10 = 23\frac{1}{3}$. This is how much she needs for 10 windows. $23\frac{1}{3} > 20\frac{3}{4}$, so there will not be enough fabric for 10 windows.

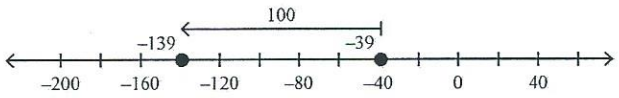
Divide $20\frac{3}{4}$ by $2\frac{1}{3} = \frac{249}{28} = 8\frac{25}{28}$; therefore 8 windows could be finished.

PTS: 1 DIF: Advanced REF: Lesson 2-4 OBJ: 2-4.3 Solve multi-step problems.
STA: 8.2(B). TOP: Solve multi-step problems. KEY: Multi-step | Problem solving

19. ANS:

–139°C

Round –38.87°C to –39°C. Then subtract 100 from –39, which equals –139°C. On a number line, you would start at –39 and continue left 100 units.



PTS: 1 DIF: Basic REF: Lesson 1-3 OBJ: 1-3.4 Solve multi-step problems.
STA: 8.1(A) TOP: Solve multi-step problems. KEY: Multi-step | Problem solving

20. ANS:

6 coffee cakes; no cinnamon left over

Convert $1\frac{1}{2}$ to an improper fraction. $\frac{3}{2}$

Divide $\frac{3}{2}$ by $\frac{1}{4}$ to see how many cakes he can make. $\frac{3}{2} \div \frac{1}{4} = \frac{3}{2} \cdot \frac{4}{1} = 6$

Since the answer comes out as a whole number answer with no decimal (remainder), there is no cinnamon remaining.

PTS: 1 DIF: Basic REF: Lesson 2-4 OBJ: 2-4.3 Solve multi-step problems.
STA: 8.2(B) TOP: Solve multi-step problems. KEY: Multi-step | Problem solving

21. ANS:

scale factor = $\frac{1}{2}$; reduction

$A(-3, 4) \rightarrow A'\left(-\frac{3}{2}, 2\right)$ $X(1, 1) \rightarrow X'\left(\frac{1}{2}, \frac{1}{2}\right)$

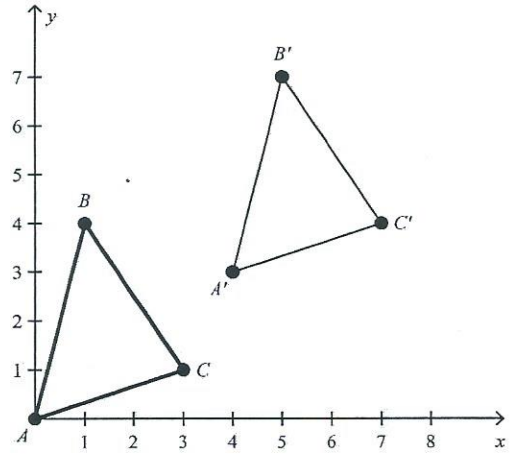
$B(0, 5) \rightarrow B'\left(0, \frac{5}{2}\right)$ $Y(-1, 1) \rightarrow Y'\left(-\frac{1}{2}, \frac{1}{2}\right)$

$C(3, 4) \rightarrow C'\left(\frac{3}{2}, 2\right)$ $Z(-1, 4) \rightarrow Z'\left(-\frac{1}{2}, 2\right)$

$W(1, 4) \rightarrow W'\left(\frac{1}{2}, 2\right)$

PTS: 1 DIF: Average REF: Lesson 4-6 OBJ: 4-6.2 Solve multi-step problems.
STA: 8.1(B) | 8.6(A) | 8.6(B) | 8.10(A) TOP: Solve multi-step problems.
KEY: Multi-step | Problem solving

22. ANS:



PTS: 1 DIF: Basic REF: Lesson 6-7 OBJ: 6-7.2 Solve multi-step problems.
STA: 8.6(B) TOP: Solve multi-step problems. KEY: Multi-step | Problem solving

23. ANS:

34

The rule is to add 4 from row to row.
In general, if x represents the row number, the number of flowers in row $x = 6 + 4(x - 1)$.
You could also just add 4 repeatedly until you get to the eighth number in the sequence, 34.

PTS: 1 DIF: Advanced REF: Lesson 2-8 OBJ: 2-8.2 Solve multi-step problems.
STA: 8.14(C) TOP: Solve multi-step problems. KEY: Multi-step | Problem solving

24. ANS:
2 bottles

Multiply $3 \cdot \frac{3}{4}$ to find how much she needs. $3 \cdot \frac{3}{4} = \frac{9}{4}$, or $2\frac{1}{4}$ cups

Convert $2\frac{1}{4}$ cups to ounces by multiplying by 8 since there are 8 oz. in a cup. $\frac{9}{4} \cdot 8 = 18$

Since she needs 18 oz. and there is 15 oz. per bottle, she will need 2 bottles.

PTS: 1 DIF: Advanced REF: Lesson 2-4 OBJ: 2-4.3 Solve multi-step problems.
STA: 8.2(B) TOP: Solve multi-step problems. KEY: Multi-step | Problem solving

25. ANS:
15 feet; use the Pythagorean Theorem $a^2 + b^2 = c^2$. Substitute 20 for a and 25 *for* c.

$20^2 + b^2 = 25^2$

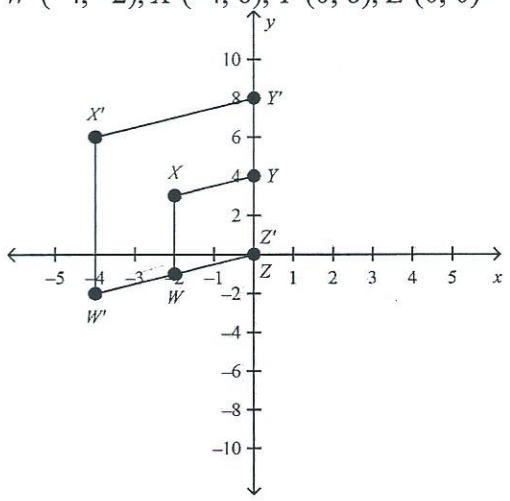
$b^2 = 225$

$b = \sqrt{225}$

$b = 15$

PTS: 1 DIF: Basic REF: Lesson 3-5 OBJ: 3-5.2 Solve multi-step problems.
STA: 8.7(C) | 8.9(A) TOP: Solve multi-step problems.
KEY: Multi-step | Problem solving

26. ANS:
$W'(-4, -2)$, $X'(-4, 6)$, $Y'(0, 8)$, $Z'(0, 0)$



PTS: 1 DIF: Average REF: Lesson 4-6 OBJ: 4-6.2 Solve multi-step problems.
STA: 8.1(B) | 8.6(A) | 8.6(B) | 8.10(A) TOP: Solve multi-step problems.
KEY: Multi-step | Problem solving

27. ANS:
$26\frac{1}{8}\text{in}^2$

$$P = 2l + 2w$$
$$20\tfrac{1}{2} = 2l + 2\left(5\tfrac{1}{2}\right)$$
$$\tfrac{41}{2} = 2l + \tfrac{22}{2}$$
$$\tfrac{41}{2} - \tfrac{22}{2} = 2l$$
$$\tfrac{19}{2} \div 2 = l$$
$$\tfrac{19}{2} \div \tfrac{2}{1} = l$$
$$\tfrac{19}{2} \cdot \tfrac{1}{2} = l$$
$$\tfrac{19}{4} = l$$

Area $= lw = \frac{19}{4} \cdot \frac{11}{2} = \frac{209}{8} = 26\frac{1}{8}\text{in}^2$

PTS: 1 DIF: Advanced REF: Lesson 2-7 OBJ: 2-7.3 Solve multi-step problems.
STA: 8.1(A) | 8.5 TOP: Solve multi-step problems. KEY: Multi-step | Problem solving

28. ANS:
$\pm\sqrt{256} = 16$. Since length cannot be negative, each side of the square is 16, so 4(16) = 64 millimeters.

PTS: 1 DIF: Average REF: Lesson 3-1 OBJ: 3-1.2 Solve multi-step problems.
STA: 7.1(C) TOP: Solve multi-step problems. KEY: Multi-step | Problem solving

MULTIPLE CHOICE

29. ANS: D PTS: 1 STA: 8.14(A)
30. ANS: B PTS: 1 STA: 8.1(A)

31. ANS: D
Use the order of operations to simplify the expression.
Sample:
$10+(20+6)\cdot 2-3^4\div 9$

$10+(26)\cdot 2-3^4\div 9$

$10+26\cdot 2-81\div 9$

$10+52-9$

53

	Feedback
A	Remember, addition and subtraction are the final step in the order of operations.
B	Simplify within grouping symbols before performing any multiplications or divisions.
C	The order of operations say to simplify within grouping symbols first and then to simplify all exponents.
D	Correct!

PTS: 1 DIF: Average REF: Lesson 1-2 OBJ: 1-2.1 Evaluate expressions.
STA: 8.15(A) | 8.16(B) TOP: Evaluate expressions.
KEY: Evaluating expressions | Expressions

32. ANS: D
Use the order of operations to simplify the expression.
Sample:
$6-10\div 5$
$6-2$
4

	Feedback
A	Apply the order of operations to simplify the expression.
B	Apply the order of operations to simplify the expression.
C	In the order of operations, multiplication and division are performed before addition and subtraction.
D	Correct!

PTS: 1 DIF: Basic REF: Lesson 1-2 OBJ: 1-2.1 Evaluate expressions.
STA: 8.15(A) | 8.16(B) TOP: Evaluate expressions.
KEY: Evaluating expressions | Expressions

33. ANS: C PTS: 1 STA: 8.10(A)

34. ANS: B PTS: 1 STA: 8.5(B)

35. ANS: C
To add integers with different signs, subtract their absolute values. Keep the sign of the integers with the greatest absolute value.
Sample:
$-43 + 59$
16

	Feedback
A	To add integers with different signs, subtract their absolute values.
B	To add integers with different signs, subtract their absolute values.
C	Correct!
D	To add integers with different signs, subtract their absolute values.

PTS: 1 DIF: Basic REF: Lesson 1-4 OBJ: 1-4.1 Add integers.
STA: 7.2(C) | 8.16(B) TOP: Add integers.
KEY: Addition | Integers

36. ANS: B
Substitute the appropriate values and use the order of operations to simplify.
Sample:
$a = 3,\ b = 4,\ c = 6$

$3a(b^2 + 2b) - 3c$

$3(3)[4^2 + 2(4)] - 3(6)$

$3(3)[16 + 8] - 3(6)$

$3(3)(24) - 3(6)$

$9(24) - 18$

$216 - 18$

198

	Feedback
A	Remember the order of operations: exponents, grouping symbols, multiplication/division, addition/subtraction in order from left to right.
B	Correct!
C	Remember the order of operations: exponents, grouping symbols, multiplication/division, addition/subtraction in order from left to right.
D	Check your signs and try again.

PTS: 1 DIF: Average REF: Lesson 1-2 OBJ: 1-2.2 Evaluate algebraic expressions.
STA: 8.15(A) | 8.16(B) TOP: Evaluate algebraic expressions.
KEY: Evaluating expressions | Algebraic expressions

37. ANS: D
Substitute the appropriate values and simplify.
Sample:
$a = 3, b = 4, c = 6$

$3a + 8b - 5c$

$3(3) + 8(4) - 5(6)$

$9 + 32 - 30$

11

	Feedback
A	Be sure to substitute the correct values for a, b, and c.
B	Check your signs and try again.
C	Substitute for each unknown, and use the order of operations to simplify the expression.
D	Correct!

PTS: 1 DIF: Basic REF: Lesson 1-2 OBJ: 1-2.2 Evaluate algebraic expressions.
STA: 8.15(A) | 8.16(B) TOP: Evaluate algebraic expressions.
KEY: Evaluating expressions | Algebraic expressions

38. ANS: A PTS: 1 STA: 8.1(C)
39. ANS: A PTS: 1 STA: 8.6(A)
40. ANS: D PTS: 1 STA: 8.4
41. ANS: B PTS: 1 STA: 8.4
42. ANS: C PTS: 1 STA: 8.5(B)
43. ANS: D PTS: 1 STA: 8.5(B)
44. ANS: B PTS: 1 STA: 8.1(A)
45. ANS: C PTS: 1 STA: 8.1(D)
46. ANS: C PTS: 1 STA: 8.6(B)
47. ANS: D
Any fraction can be expressed as a decimal by dividing the numerator by the denominator. You can use bar notation to indicate repeating digits.

	Feedback
A	Did you use a math operation?
B	Should the value of the fraction be less than or greater than one-half?
C	Is that answer reasonable?
D	Correct!

PTS: 1 DIF: Average REF: Lesson 2-1 OBJ: 2-1.1 Express fractions as decimals.
STA: 7.1(B) TOP: Express fractions as decimals. KEY: Fractions | Decimals

48. ANS: A
Any fraction can be expressed as a decimal by dividing the numerator by the denominator. You can use bar notation to indicate repeating digits.

	Feedback
A	Correct!
B	Are you remembering the rules for dividing signed numbers?
C	Did you use a math operation?
D	Is that answer reasonable?

PTS: 1 DIF: Average REF: Lesson 2-1 OBJ: 2-1.1 Express fractions as decimals.
STA: 7.1(B) TOP: Express fractions as decimals. KEY: Fractions | Decimals

49. ANS: C PTS: 1 STA: 8.7(D)

50. ANS: B PTS: 1 STA: 8.1(D)