Show all work to receive credit. Assignment should be completed without a calculator.

Chapter 1 Maintaining Mathematical Proficiency

Simplify the expression.

1. $|-3 + (-1)| =$

2. $|10 - 11| =$

3. $|-6 + 8| =$

4. $|9 - (-1)| =$

5. $|-12 - (-8)| =$

6. $|-15 - 7| =$

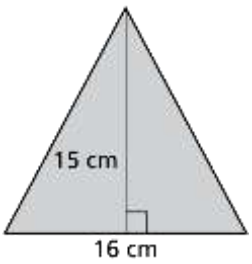
7. $|-12 + 3| =$

8. $|5 + (-15)| =$

9. $|1 - 12| =$

Find the area of the triangle.

10.



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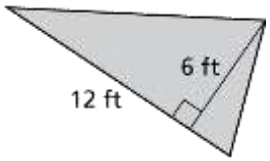

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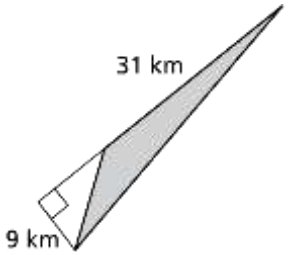


Chapter 2 Maintaining Mathematical Proficiency

Solve the literal equation for x.

1. $3x - 9y = 12$

2. $2x - y = 11x - 18$

3. $6x + 5 = 30y - 7$

4. $16y - 4x = 40$

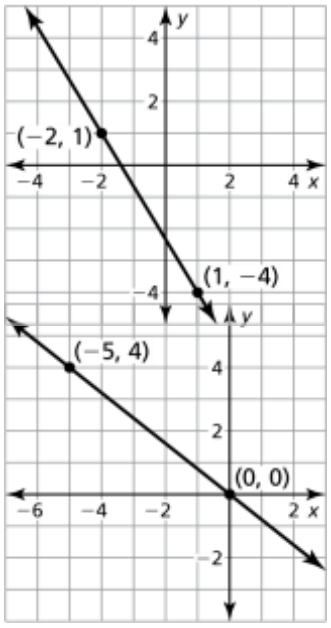
5. $10y = 2x + 3zx + 1$

6. $14z = 2x + 4xy$

Chapter 3 Maintaining Mathematical Proficiency

Find the slope of the line.

1.



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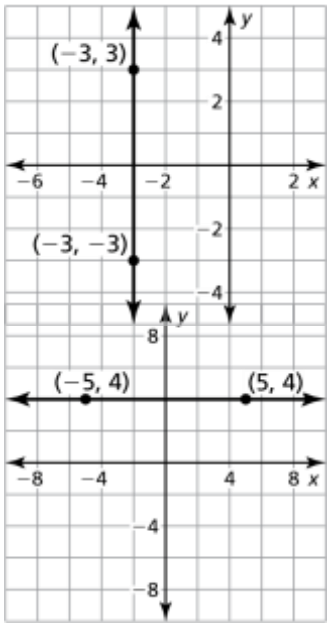

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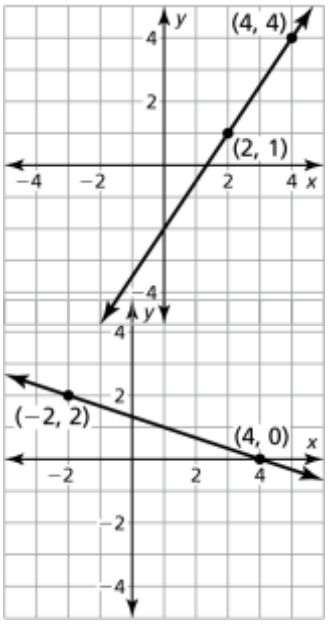


4.

5.

6.

Write an equation of the line that passes through the given point and has the given slope.

7. $(0, -8)$; $m = \frac{3}{5}$

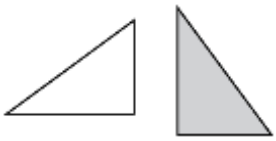
8. $(-4, 3)$; $m = \frac{1}{3}$

9. $(2, -1)$; $m = 5$

Chapter 4 Maintaining Mathematical Proficiency

Tell whether the shaded figure is a translation, reflection, rotation, or dilation of the nonshaded figure.

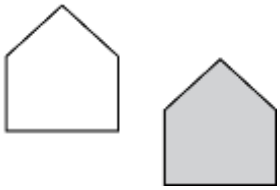
1.



2.

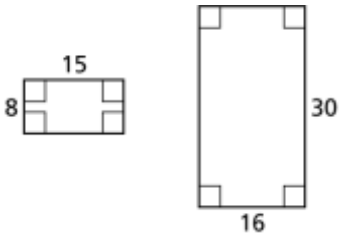
3.

4.



Tell whether the two figures are similar. Explain your reasoning.

5.



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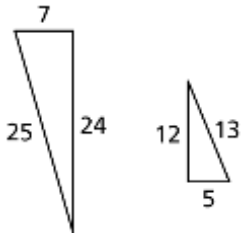


Chapter 5 Maintaining Mathematical Proficiency

Find the coordinates of the midpoint *M* of the segment with the given endpoints. Then find the distance between the two points. Leave answers in simplest radical form.

1. $A(3, 1)$ and $B(5, 5)$

2. $F(0, -6)$ and $G(8, -4)$

3. $P(-2, -7)$ and $B(-4, 5)$

4. $S(10, -5)$ and $T(7, -9)$

Solve the equation.

5. $9x - 6 = 7x$

6. $2r + 6 = 5r - 9$

7. $20 - 3n = 2n + 30$

8. $8t - 5 = 6t - 4$

Chapter 6 Maintaining Mathematical Proficiency

Write an equation of the line passing through point *P* that is perpendicular to the given line.

1. $P(5, 2), y = 2x + 6$

2. $P(4, 2), y = 6x - 3$

3. $P(-1, -2), y = -3x + 6$

4. $P(-8, 3), y = 3x - 1$

5. $P(6, 7), y = x - 5$

6. $P(3, 7), y = \frac{1}{4}x + 4$

Write the sentence as an inequality.

7. A number g is at least 4 and no more than 12.

8. A number r is more than 2 and less than 7.

9. A number q is less than or equal to 6 or greater than 1.

10. A number p is fewer than 17 or no less than 5.

11. A number k is greater than or equal to –4 and less than 1.

Chapter 7 Maintaining Mathematical Proficiency

Solve for x.

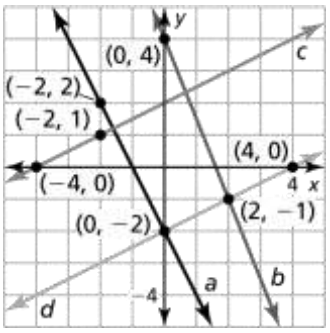
1. $5(10 - x) = 100$

2. $6(x + 8) - 12 = -48$

3. $3(2 - x) + 4(2 - x) = 56$

Determine which lines are parallel and which are perpendicular.

4.



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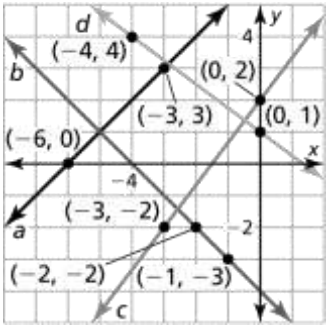

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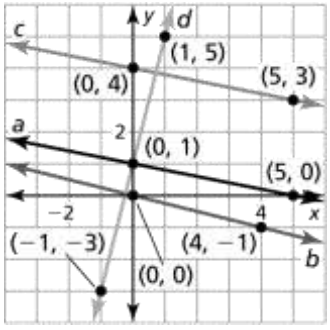


7. Explain why you can rewrite $4(x - 9) + 5(9 - x) = 11$ as $-(x - 9) = 11$? Then solve the equation.

Chapter 8 Maintaining Mathematical Proficiency

Tell whether the ratios form a proportion.

1. $\frac{3}{4}, \frac{16}{12}$

2. $\frac{35}{63}, \frac{45}{81}$

3. $\frac{12}{96}, \frac{16}{100}$

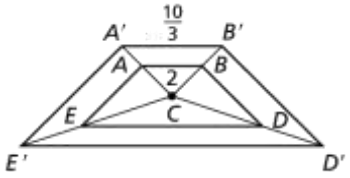
4. $\frac{15}{24}, \frac{75}{100}$

5. $\frac{17}{68}, \frac{32}{128}$

6. $\frac{65}{105}, \frac{156}{252}$

Find the scale factor of the dilation.

7.



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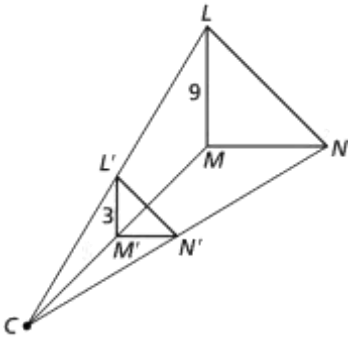


Chapter 9 Maintaining Mathematical Proficiency

Simplify the expression. Leave your answer in simplest radical form!

1. $\sqrt{500}$

2. $\sqrt{189}$

3. $\sqrt{252}$

4. $\frac{4}{\sqrt{3}}$

5. $\frac{11}{\sqrt{5}}$

6. $\frac{8}{\sqrt{2}}$

Solve the proportion.

7. $\frac{x}{21} = \frac{2}{7}$

8. $\frac{x}{5} = \frac{9}{4}$

9. $\frac{3}{x} = \frac{14}{42}$

10. $\frac{20}{27} = \frac{6}{x}$

11. $\frac{x - 4}{5} = \frac{10}{9}$

12. $\frac{15}{5x + 25} = \frac{3}{9}$

13. The Pythagorean Theorem states that $a^2 + b^2 = c^2$, where a and b are legs of a right triangle and c is the hypotenuse. Are you able to simplify the Pythagorean Theorem further to say that $a + b = c$? Explain.

Chapter 10 Maintaining Mathematical Proficiency

Find the product.

1. $(x - 4)(x - 9)$

2. $(k + 6)(k - 7)$

3. $(y + 5)(y - 13)$

4. $(2r + 3)(3r + 1)$

5. $(4m - 5)(2 - 3m)$

6. $(7w - 1)(6w + 5)$

Solve the equation by completing the square. Round your answer to the nearest hundredth, if necessary.

7. $x^2 + 6x = 10$

8. $p^2 - 14p = 5$

9. $z^2 + 16z + 7 = 0$

10. $z^2 + 5z - 2 = 0$

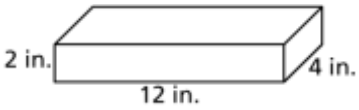
11. $x^2 + 2x - 5 = 0$

12. $c^2 - c - 1 = 0$

Chapter 11 Maintaining Mathematical Proficiency

Find the surface area of the prism.

1.



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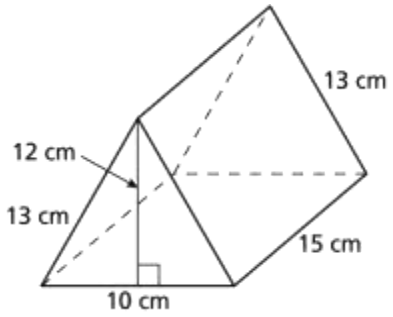

Find the missing dimension.

3. A rectangle has an area of 25 square inches and a length of 10 inches. What is the width of the rectangle?

4. A triangle has an area of 32 square centimeters and a base of 8 centimeters. What is the height of the triangle?