

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

Chapter 1

Maintaining Mathematical Proficiency

Evaluate.

1. $7 \cdot 3^2 + 11$

2. $10 - 3(3 + 1)^3$

3. $64 \div 4^2 + \frac{1}{2}$

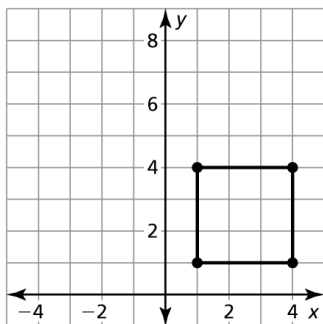
4. $-99 \div 3^2 \cdot 5$

5. $\frac{1}{7}(7^2 + 28)$

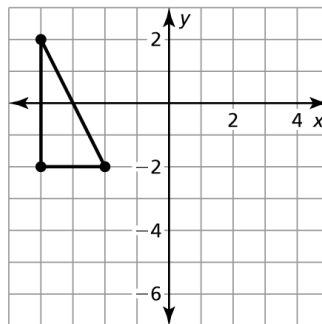
6. $-\frac{1}{8}(8 + 24) - 2^2$

Graph the transformation of the figure.

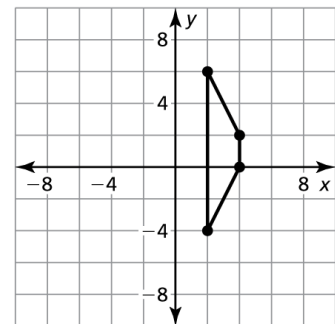
7. Translate the rectangle 3 units left and 4 units up.



8. Reflect the right triangle in the y -axis. Then translate 3 units down.



9. Translate the trapezoid 2 units up. Then reflect in the x -axis.



10. The point $(1, 1)$ is on $f(x)$. After a series of 3 transformations, $(1, 1)$ has been moved to $(2, -7)$. Write a function $g(x)$ that represents the transformations on $f(x)$.

**Chapter
2****Maintaining Mathematical Proficiency**

Find the x -intercept of the graph of the linear equation.

1. $y = 4x + 36$

2. $y = -3x + 5$

3. $y = -10x - 75$

4. $y = 2(x - 9)$

5. $y = -7(x + 10)$

6. $5x + 15y = 60$

Find the distance between the two points.

7. $(1, 3), (-2, 8)$

8. $(-5, 0), (-9, 2)$

9. $(3, 7), (10, 4)$

10. $(6, -2), (-3, 0)$

11. $(9, -1), (9, 8)$

12. $(0, 5), (-4, -6)$

13. A student uses the Distance Formula to find the distance between two points (a, b) and (c, d) . What does the step $\sqrt{(c - a)^2 + (0)^2}$ tell the student about the relationship between the two points? How could the student have found the distance between the two points using another method?

**Chapter
3****Maintaining Mathematical Proficiency**

Simplify each expression in simplest radical form.

1. $\sqrt{50}$

2. $-\sqrt{96}$

3. $\sqrt{\frac{3}{121}}$

4. $\sqrt{200}$

5. $\sqrt{\frac{75}{81}}$

6. $-\sqrt{\frac{14}{144}}$

7. $-\sqrt{54}$

8. $\sqrt{250}$

Factor the polynomial.

9. $x^2 - 100$

10. $4x^2 - 49$

11. $16x^2 - 9$

12. $x^2 - 30x + 225$

13. $x^2 + 16x + 64$

14. $25x^2 + 10x + 1$

15. Explain why the expression $81 - x^4$ *cannot* be factored into $(3 + x)^2(3 - x)^2$.

Chapter**4****Maintaining Mathematical Proficiency**

Simplify the expression.

1. $-8x - 9x$

2. $25r - 5 + 7r - r$

3. $3 + 6(3x - 5) + x$

4. $3y - (2y - 5) + 11$

5. $-3(h + 7) - 7(10 - h)$

6. $5 - 8x^2 + 5x + 8x^2$

Find the volume or surface area of the solid.

7. volume of a right cylinder with radius 5 feet and height 15 feet

8. surface area of a rectangular prism with length 10 meters, width 20 meters, and height 4 meters

9. volume of a cube with side length 2.5 millimeters

10. surface area of a sphere with radius 1 foot

11. For what radius length can the value of the volume of a sphere equal the value of the surface area?

**Chapter
5****Maintaining Mathematical Proficiency**

Simplify the expression.

1. $c \cdot c^9$

2. $\frac{q^{12}}{q^4}$

3. $\frac{x^3}{x^4 \cdot x^5}$

4. $\frac{d^2}{d} \cdot 8d^5$

5. $\left(\frac{4x^3}{2y^4}\right)^2$

6. $\left(\frac{m^8 \cdot m^3}{n \cdot m}\right)^3$

Solve the literal equation for y .

7. $x + y = 1$

8. $-3y + \frac{1}{2}x = -6$

9. $24x + 5y = 74$

10. $6xy + 3y = -72$

11. $10x - 5xy = 100$

12. $-\frac{1}{4}x + 8xy = 16$

13. Is $\left(\frac{x + 3x}{y + 2y}\right)^2 = \left(\frac{x^2 + 3^2x^2}{y^2 + 2^2y^2}\right)$ or is $\left(\frac{x + 3x}{y + 2y}\right)^2 = \left(\frac{4^2x^2}{3^2y^2}\right)$? Explain your reasoning.

Chapter 6 Maintaining Mathematical Proficiency

Evaluate the expression.

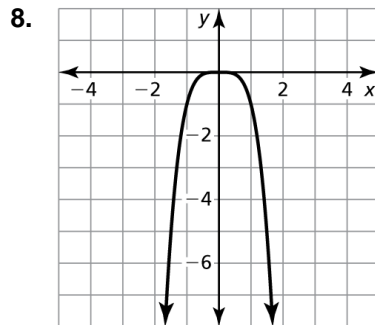
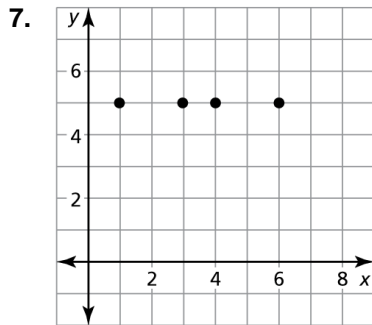
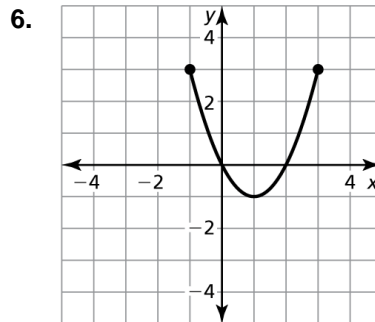
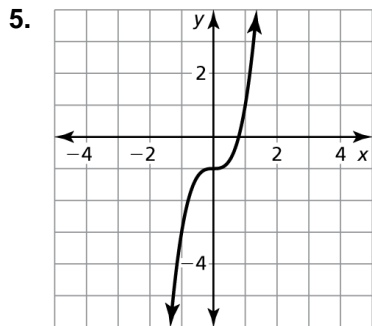
1. $-4 \cdot 5^3$

2. $(-3)^4$

3. $-\left(\frac{7}{8}\right)^2$

4. $\left(\frac{3}{10}\right)^3$

Find the domain and range of the function represented by the graph.



9. Is the expression “the sum of the square of x and the square of the opposite of x ” equivalent to 0 or $2x^2$? Explain your reasoning.

**Chapter
7****Maintaining Mathematical Proficiency****Evaluate.**

1. $\frac{2}{3} + \frac{2}{3}$

2. $\frac{1}{5} + \frac{1}{4}$

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

4. $\frac{9}{11} - \frac{2}{11}$

5. $\frac{1}{5} - \frac{7}{10}$

6. $\frac{5}{8} - \frac{1}{6}$

7. $-\frac{3}{8} + \frac{2}{9} - \frac{1}{2}$

8. $\frac{3}{4} - \left(-\frac{1}{8}\right)$

9. $\frac{13}{18} + \frac{2}{9} - \frac{1}{2}$

Simplify.

10. $\frac{\frac{2}{3}}{\frac{8}{15}}$

11. $\frac{\frac{1}{6}}{-\frac{2}{3}}$

12. $\frac{\frac{3}{4}}{12}$

13. $\frac{1}{\frac{1}{5} + \frac{2}{5}}$

14. $\frac{2}{\frac{4}{9} - \frac{2}{3}}$

15. $\frac{\frac{1}{2} + \frac{1}{5}}{\frac{7}{10} - \frac{2}{5}}$

**Chapter
8****Maintaining Mathematical Proficiency**

Complete the table to evaluate the function.

1. $y = 4 + 2^x$

x	y
1	
2	
3	

2. $y = 2x^3 - 5$

x	y
0	
1	
2	

3. $y = -2x + 10$

x	y
-4	
-2	
0	

Solve the equation. Check your solution(s).

4. $50 = 4 + 2x$

5. $\frac{1}{3} = 3\left(\frac{1}{3}\right)^x$

6. $45 = 5(2x - 1)$

7. $3^x + 12 = 93$

8. $\frac{2}{5}x + 8 = 2$

9. $\frac{32}{125} = 25\left(\frac{2}{5}\right)^x$

Chapter 9

Maintaining Mathematical Proficiency

Name _____ Date _____

Order the expressions by value from least to greatest.

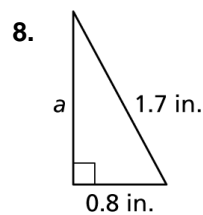
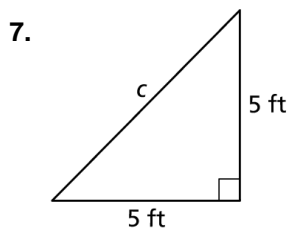
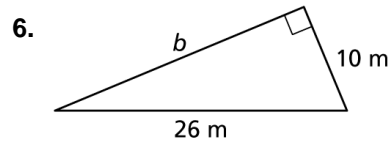
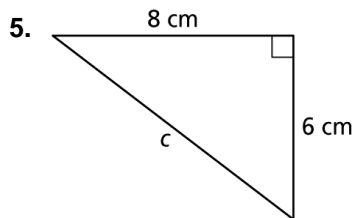
1. $|-8|, |1 + 4|, |3 - 7|, -|2|$

2. $|8 - 2|, |3 - 6|, |0|, \left|-\frac{3}{2}\right|$

3. $|-2^2|, |-9 - 1|, |3 \cdot (-3)|, |-2| + |-1| - |3|$

4. $|-5 + 15|, |3| - |3 \cdot 4|, |3 - 7|, -|3^3|$

Find the missing side length of the triangle.



**Chapter
10****Maintaining Mathematical Proficiency**

Write and solve a proportion to answer the question.

1. What percent of 260 is 65?
2. What number is 32% of 75?
3. 15.01 is what percent of 19?

Display the data in a histogram.

4.

	Number of Strike-outs in One Game		
Strike-outs	0–3	4–7	8–11
Frequency	34	20	8

5.

	Number of Days of Exercise in One Week			
Days of Exercise	0–1	2–3	4–5	6–7
Frequency	4	26	22	6

Chapter
11

Maintaining Mathematical Proficiency

Find the mean, median, and mode of the data set. Then determine which measure of center best represents the data. Explain.

1. 26, 24, 55, 21, 32, 26

2. 63, 66, 61, 70, 69, 67, 63, 65

3. 40, 37, 21, 43, 37, 41, 43, 25, 37