Unit 1 Assessment ~ Equations
EdGems Math – Course 3

Name_____ Period_____ Date_____

Solve each equation.

1. $9.9 = y + 4.8$

2. $-3y + 12 = 42$

3. $9 = -2 + \frac{k}{5}$

4. $9 = 5 - 4x$

5. $10d + 10 = 5d + 45$

6. $20 = -8(x + 2) - 4$

7. Solve the equation below. Describe the number of solution(s) using words.

$$x + 12 + 2x = 20 + 3x - 8$$

8. Peter stated that there is no solution to the equation $3(x + 5) = 3x + 5$. Do you agree or disagree? Explain your reasoning.

9. A courier service charges a flat rate of $12.50 per trip plus $0.60 per mile. They charged Films & More $23.30 to deliver a package. How many miles did the courier service have to travel?

10. Michelle had $500 in her savings account at the beginning of the summer. Each week she took $30 out of her account. Skyler had $122 in his account at the beginning of the summer. Each week he added $24 to his account. In which week will Michelle and Skyler have the same amount of money in their accounts?

11. Determine if the following values are rational or irrational.

π 36 $\frac{5}{2}$ $\sqrt{11}$ $\sqrt[3]{8}$ $6\frac{2}{3}$ $7.\overline{8}$

Rational	**Irrational**

12. Use the numbers shown to make each equation true. Each number can only be used once. Write the number on the appropriate line.

16	49	121	–11	7	6	11

a. $\sqrt{\_\_\_} = \_\_\_$ **b.** $\sqrt{\_\_\_} = \_\_\_$

13. A square-based tent covers an area of 64 square feet. What is the length of one side of the tent?

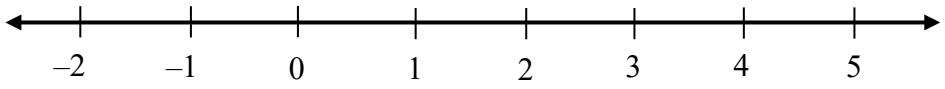
14. What two integers does $\sqrt{21}$ fall between? _____ and _____

15. Determine the value of each cube root.

a. $\sqrt[3]{1}$ = _____ **b.** $\sqrt[3]{-216}$ = _____ **c.** $\sqrt[3]{1000}$ = _____

16. Plot each value on the number line. Label each value as A, B, C, D, E and F.

A. $\frac{3\sqrt{25}}{5}$ B. $3\sqrt[3]{5}$ C. $1.\overline{7}$ D. $-\frac{\pi}{2}$ E. $\pi - 4$ F. $\sqrt[3]{-75} + 5$



Solve for *x*. Include all answers. Write as a simplified root or round to the nearest tenth.

17. $5x^2 = 125$ **18.** $x^2 - 7 = 65$ **19.** $-31 = 4x^3 + 1$

20. A rectangular prism has a volume of 9,216 cubic inches. Its length is three times its width. Its height is double the length. What are the dimensions of the prism?

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Name_____ Period_____ Date_____

Solve each equation.

1. $10.4 = y + 42.7$

2. $-3y + 8 = 32$

3. $3 = -8 + \frac{k}{4}$

4. $22 = 8 - 7x$

5. $6d + 7 = 2d + 43$

6. $6 = -2(x + 5) + 2$

7. Solve the equation below. Describe the number of solution(s) using words.

$$x + 10 + 2x = 20 + 3x - 6$$

8. Colby stated that there is no solution to the equation $4(x - 8) = 4x - 8$. Do you agree or disagree? Explain your reasoning.

9. A courier service charges a flat rate of \$14.50 per trip plus \$0.80 per mile. They charged Carlson's Law Firm \$24.90 to deliver a package. How many miles did the courier service have to travel?

10. A fitness center offers two payment options for their clients. The "Member Option" requires you to pay \$42 to become a member. After that you pay only \$2 per fitness class. The "Non-Member Option" requires you to pay \$5.50 per fitness class. For what number of classes would both options cost the same amount?

11. Determine if the following values are rational or irrational.

$\sqrt[3]{27}$ π 38 $\frac{27}{9}$ $\sqrt{21}$ $4\frac{1}{2}$ $13.\overline{3}$

Rational	**Irrational**

12. Use the numbers shown to make each equation true. Each number can only be used once. Write the number on the appropriate line.

36	49	144	–11	72	6	12

a. $\sqrt{\_\_\_} = \_\_\_$ **b.** $\sqrt{\_\_\_} = \_\_\_$

13. A square-based tent covers an area of 25 square feet. What is the length of one side of the tent?

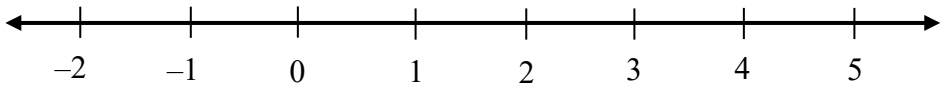
14. What two integers does $\sqrt{71}$ fall between? _____ and _____

15. Determine the value of each cube root.

a. $\sqrt[3]{216}$ = _____ **b.** $\sqrt[3]{-27}$ = _____ **c.** $\sqrt[3]{729}$ = _____

16. Plot each value on the number line. Label each value as A, B, C, D, E and F.

A. $4.\overline{9}$ B. $-\pi + 3$ C. $-\sqrt{2} + 2$ D. $\frac{\pi}{2}$ E. $\frac{2\sqrt{9}}{3}$ F. $3 + \sqrt[3]{-120}$



Solve for *x*. Include all answers. Write as a simplified root or round to the nearest tenth.

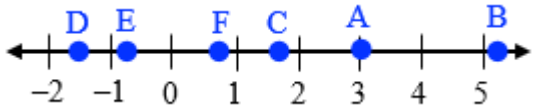
17. $x^2 - 19 = 17$ **18.** $3x^2 = 132$ **19.** $-191 = 3x^3 + 1$

20. A rectangular prism has a volume of 10,976 cubic inches. Its length is four times its width. Its height is double the length. What are the dimensions of the prism?

Answer Key – Unit Assessment
Unit 1: *Equations*

Form A

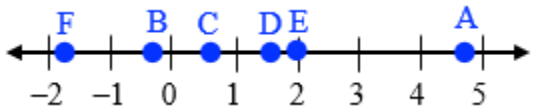
1. $y = 5.1$
2. $y = -10$
3. $k = 55$
4. $x = -1$
5. $d = 7$
6. $x = -5$
7. Infinitely many solutions
8. Agree; see student work.
9. 18 miles
10. Week 7
11. Rational: $36, \frac{5}{2}, \sqrt[3]{8}, 6\frac{2}{3}, 7.\overline{8}$
Irrational: $\pi, \sqrt{11}$
12. **a.** 121, 11
b. 49, 7
13. 8 ft
14. 4 and 5
15. **a.** 1
b. −6
c. 10
16.



17. $x = \pm 5$
18. $x = \pm 6\sqrt{2}$ or $x \approx \pm 8.5$
19. $x = -2$
20. $w = 8$ *in*, $l = 24$ *in*, $h = 48$ *in*

Form B

1. $y = -32.3$
2. $y = -8$
3. $k = 44$
4. $x = -2$
5. $d = 9$
6. $x = -7$
7. No solutions
8. Agree; see student work.
9. 13 miles
10. 12 Classes
11. Rational: $\sqrt[3]{27}, 38, \frac{27}{9}, 4\frac{1}{2}, 13.\overline{3}$
Irrational: $\pi, \sqrt{21}$
12. **a.** 36, 6
b. 144, 12
13. 5 ft
14. 8 and 9
15. **a.** 6
b. −3
c. 9
16.



17. $x = \pm 6$
18. $x = \pm 2\sqrt{11}$ or $x \approx \pm 6.6$
19. $x = -4$
20. $w = 7$ *in*, $l = 28$ *in*, $h = 56$ *in*

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Assessment Scoring Guidelines

Course 3 Unit 1 Assessment Form A and B

1-point Items: #1, 2, 3, 4, 5, 6

These items are each worth one point with no partial credit offered. Items that fall in this category are either lower depth of knowledge (DOK 1: Recall and Reproduce) questions or items that have selected answer options (i.e., True/False). Students can earn 0 or 1 point for each item in this category.

0 points	1 point
The correct solution is not given.	The correct solution is given.

2-point Items: #7, 8, 9, 10, 13, 14, 17, 18, 19

Items that are each worth two points consist primarily of Depth of Knowledge Level 2 items considered "Basic Skills and Concepts". Students may earn partial credit on items when showing progress on a solution pathway that connects to the concept being assessed. Students can earn either 0, 1 or 2 points for items in this category.

0 points	1 point	2 points
An incorrect solution is given with no work or with work that does not show understanding of the concept	Progress is made towards a correct solution, but minor errors have been made. OR The correct solution is given without necessary supporting work.	The correct solution is given and is supported by necessary work or explanation.

3-point Items: #11, 12, 15, 16, 20

Items that are each worth three points consist primarily of Depth of Knowledge Level 3 items considered "Strategic Thinking". Students may earn partial credit on items when showing progress on a solution pathway that connects to the concept being assessed with one or more errors. Students can earn either 0, 1, 2 or 3 points for items in this category.

0 points	1 point	2 points	3 points
An incorrect solution is given with no work or with work that does not show understanding of the concept	Progress is made towards a correct solution, but multiple errors have been made. OR A correct solution is given with no supporting work or explanation.	Progress is made towards a correct solution, but one small error is made. OR A correct solution is given with partial supporting work provided.	The correct solution is given and is supported by necessary work or explanation.

Total Points Possible: 39

Not Yet Met	Nearly Meets	Meets	Exceeds
0-23	24-27	28-35	36-39