Unit 2 Review

1. Write an equation to represent the sentence:

   Four times the sum of a number x and a number y is equal to 20.

   $$4(x+y) = 20$$

2. Write a sentence for this equation: 2 + 3n = 4n.

   Two plus three times n is the same as four times n.

3. You can approximate the distance to a lightning strike by counting the seconds between the flash of lightning and the sound of thunder. This table shows the relationship between the time and distance.

Time (t)	5	10	15
Distance (d)	1	2	3

   Which equation shows the relationship between the time, t, in seconds and the distance, d, in miles?
   a. $d = t + 4$
   b. $d = t - 4$
   c. $d = \frac{1}{5}t$ *(circled)*
   d. $d = 5t$

4. Solve 4t = -20 and identify the property of equality that could be used to solve the equation.

   t = ___-5___   Solved using ___division___ property of equality.

5. Solve 2 − x = 19

   $$x = -17$$

   $$2 - x = 19$$
   $$-2 \qquad -2$$
   $$-x = 17$$
   $$x = -17$$

   $$-x = 17$$
   $$+x \qquad +x$$
   $$0 = 17 + x$$
   $$-17 \quad -17$$
   $$-17 = x$$

6. The coldest temperature recorded in Siberia was -90° F. This was 10° F colder than the coldest temperature recorded in Alaska. Which equation can be used to find the coldest temperature recorded in Alaska? What is the coldest temperature recorded in Alaska?

   Error

   a. T + 10 = 90; -100°
   b. T + 10 = 90; -80°
   c. T - 10 = 90; -100°
   d. T - 10 = 90; -80° *(circled)*

Unit 2 Review

7. Solve $36 = 2p - 12$

$p = 24$

$36 = 2p - 12$
$+12 \qquad +12$
$48 = 2p$

8. Solve $\frac{15+ax}{2} = 11$ for x. Assume a does not equal 0.

$x = \frac{7}{a}$

9. Solve $3x - 2.6 = 10$

$x = 4.2$

10. A car leaves Seattle traveling at a speed of 60 mph. Two hours later, a second car leaves Seattle traveling at a speed of 50 mph. The cars distances from Seattle at a time of t hours are shown in the table.

Car	A	B
Distance (miles)	60t	50(t – 2)

After how much time will the cars be the same distance from Seattle?

$60t = 50(t-2)$

$60t = 50t - 100$
$-50t \qquad -50t$

$10t = -100$
$\frac{10t}{10} = \frac{-100}{10}$
$t = -10$

11. Solve $4(x + 9) = 6x + 4$
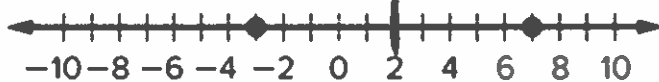
$x = 16$

Unit 2 Review

12. Complete the table below to identify the number of solutions each equation has.

EQUATION	One Solution	No Solution	Identity (All Solutions)
$5x + 10 = 5(x + 2)$ $5x+10 = 5x+10$			✓
$3(t + 2) = (2 + 3t) + 6$ $3t+2 = 8 + 3t$		✓	
$10 - m = m - 12$ $+m \quad +m$ _____ $10 = 2m - 12$	✓		

13. Solve $3|y + 4| = 24$

$$y = 4 \quad \& -12$$

14. Which could be an equation for the graph shown?

$$-10\ -8\ -6\ -4\ -2\quad 0\quad 2\quad 4\quad 6\quad 8\quad 10$$

   a. $|x - 5| = 2$
   b. $|x - 2| = 5$
   c. $|x + 2| = 5$
   d. $|x + 5| = 2$

15. Solve $\dfrac{x+5}{10} \cancel{=} \dfrac{8}{5}$

$x = 11$

$5x + 25 = 80$
$\quad\quad\ -25$
_____
$5x = 55$
$\ \ 5\quad 5$
$x = 11$

16. Solve $-\dfrac{12}{x} = \dfrac{24}{8}$ → $\dfrac{-12}{x} \cancel{=} \dfrac{24}{8}$ $96 =$

$x = -4$

$-96 = 24x$

Unit 2 Review

17. The screen of a standard television has a width to height ratio of (4:3). $\rightarrow \frac{4}{3} \quad \frac{3}{h}$

$$\frac{3}{4} = \frac{h}{15} \qquad \frac{4}{15} = \frac{3}{h}$$

Write a proportion that can be used to find the height of a standard television screen with a width of 15 inches. Then solve.

$$\frac{4}{3} = \frac{15}{h}$$

$$\frac{4h}{4} = \frac{45}{4}$$
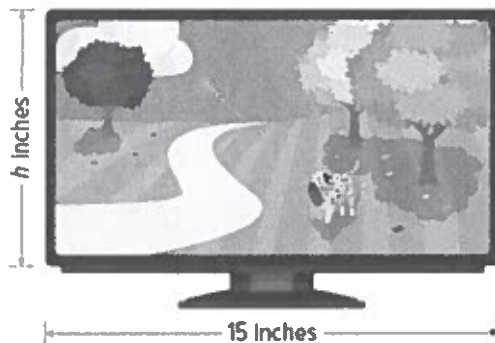
$$h = 11.25$$

h inches

15 inches

18. Solve $\frac{x+12}{8} = 4y$ for x.

$$x + 12 = 20y$$
$$-12 \qquad -12$$

$$x = 20y - 12$$

$$x = 20y - 12$$

19. The standard length of a volleyball court is 60 feet. If 1 meter ≈ 3.3 feet, what is the length of the volleyball court in meters? Round to the nearest tenth, if necessary.

$$\frac{60}{3.3} = 18.2$$

20. The area of a trapezoid is given by the formula $A = \frac{1}{2}h(a + b)$ where h is the height and a and b are the measures of the two bases.

What is the height of a trapezoid with an area of 32 square inches if the two bases measure 4 inches and 6 inches?

$$h = \frac{2A}{a+b} \implies h = \frac{2(32)}{4+6} = 6.4$$