Warm Up November 5, 2018

1.) The graph of a linear function is a vertical line. When x = -3 and y=4, what is the equation for the linear function? $x = -3$

2.) Solve for x: $5(x-3) - 2(x+1) = 4$

$5x - 15 - 2x - 2 = 4$

$3x - 17 = 4$

$+17 \quad +17$

$\frac{3x}{3} = \frac{21}{3}$

$x = 7$

3.) Simplify: $[(-5 + 1) \div 2]^2 - |-7|$

$[-4 \div 2]^2 - 7$

$[-2]^2 - 7$

$4 - 7$

-3

LINEAR EQUATIONS WORD PROBLEMS

Type 1	SLOPE-INTERCEPT	Notes: *Use when given a rate of change and a starting point*

$y = mx + b$

b =

1. Evan is going to the county fair this weekend. The admission to the fair is $5 and the cost per ride is 50¢. If his parents gave him $20, write and solve a linear equation to find how many rides he can go on.

m

$y = .50x + 5$

y =

$20 = .50x + 5$

$15 = .50x$

$x = 30$ Rides

2. While visiting Crimson Lake, Sally decided to go kayaking. The rangers charge $8.50 per hour in addition to a $25.00 deposit to rent the kayak. If she rented the kayak from 11:30 a.m. to 2:30 p.m., write and solve a linear equation to find the total cost to rent the kayak.

b =

$y = 8.50x + 25$

y =

$y = 8.50(3) + 25$

$y = \$50.50$

Type 2	**STANDARD FORM**	Notes: *Use when the problem relates two different items*

$$+Ax + By = C$$

5. Sam ordered two hamburgers and three hotdogs from the concession stand at the baseball game. His bill came to $19.05. If hamburgers cost $5.25 each, write and solve a linear equation to find the cost of each hot dog.

x = cost per hamburger
y = cost per hotdog

$2x+3y=19.05$

$2(5.25)+3y=19.05$

$10.50+3y=19.05$

$-10.50 \quad -10.50$

$3y=8.55$

$\frac{3y}{3}=\frac{8.55}{3}$

$y=\$2.85$

6. Tickets at a school play cost $4 in advance or $5 at the door. Total ticket sales for an evening production were $440. If no tickets were sold in advance, write and solve a linear equation to find the how many were sold at the door.

x = number of advance tickets $x=0$
y = number of at the door tickets

$4x+5y=440$

$4(0)+5y=440$

$\frac{5y}{5}=\frac{440}{5}$

$y=88$

88 door tickets

Type 3

POINT & SLOPE

Notes: *Use when the problem gives a sample point rate of change*

$Y_2 - Y_1 = m(X - X_1)$

(4, 68)
m = 12

9. At Eagle Bay, it cost $12 per hour to rent a canoe. Nate and his friends rented a canoe for 4 hours and paid $68. Write and solve a linear equation to find the cost to rent the canoe for 7 hours.

$y - 68 = 12(x - 4)$
$y - 68 = 12x - 48$
$+68 \quad +68$
$y = 12x + 20$

The flat fee to rent the canoe is $20.

$y = 12(7) + 20$
$y = \$104$

10. A construction company charges $18 per hour for debris removal, plus a one-time fee for the use of the trash dumpster. The total fee for 8 hours of service was $219. Write and solve a linear equation to find the one-time fee for the trash dumpster.

m = 18
(8, 219)

→ find y-int.

$y - 219 = 18(x - 8)$

b =

$y - 219 = 18x - 144$
$+219 \quad +219$
$y = 18x + 75$

The one time fee for the dumpster is $75.

Type 4

TWO POINTS

Notes: *Use when the problem gives two sample points*

Slope --> Point Slope

13. To surf the internet for 15 minutes at an airport, it costs $4.05. For 40 minutes it costs $5.80. Write and solve a linear equation to find the cost for surfing the web for one hour.

(15, 4.05) (40, 5.80)

$m = \frac{5.80 - 4.05}{40 - 15} =$

$m = 0.07$

60 min

$y - 4.05 = .07(x - 15)$

$y - 4.05 = .07x - 1.05$

$+4.05 \qquad +4.05$

$y = .07x + 3$

It costs 7 cents per minute to surf the internet.

The initial fee to surf the internet is $3.00.

$y = .07(60) + 3$

$y = \$7.20$

The cost to surf the internet for one hour is $7.20.

14. Water boils at 100° Celsius or 212° Fahrenheit. Water freezes at 0° Celsius or 32° Fahrenheit. If the weather forecaster says it will be 25° Celsius today, write and solve a linear equation to find what Fahrenheit temperature this is.