*Review 1.1-1.3(****Key****)*

1. Find the *x*-and *y*-intercepts of the equation 2*x* + = 10. Write the answer in ordered pair form.

***x*-intercept: Let *y*-intercept: Let**

**2*x* + 10 2(0) + 10**

**2*x* 10 (3) 10 (3)**

**-intercept:(, 0) -intercept:(0, 30)**

2. Given that a line has intercepts (30, 0) and (0, 125), which of the following viewing windows will be the most appropriate?

a. [35, 10, 5] by [30, 120, 20] **b.** **[40, 40, 10] by [30, 130, 20]**

3. Find the slope of the line passing through the points (3,4) and (5, 7).

***m* =  =  = **

4. A jewelry crafter charges a design fee of $25 for fine earrings and sells each pair for $169. The total cost for the earrings, *y*, can be represented by the equation *y* = 169*x* + 25, where *x* represents the number of pairs of earrings.

a.  Find the slope or rate of change of the total cost equation, and explain its meaning in the context

of this problem. Answer in a complete sentence.

***m* = 169; excluding the design fee, each pair of earrings costs $169.**

b. Find the vertical intercept (*y*-intercept) and explain its meaning.

**(0, 25); there is an initial design fee of $25.**

5. The graph below shows the amount of gasoline, *g*, left in the tank fuel of a 5-gallon portable generator after running for *h* hours.



a. Find both intercepts and explain their meaning in the context of this problem

**The *x*-intercept is (8, 0); the portable generator will run out of fuel after 8 hours.**

**The *y*-intercept is (0, 5); the portable generator started with 5 gallons of fuel.**

b. Find the slope, to the nearest tenth, and explain its meaning.

***m* =  = =**

***m* = 0.6; the generator is consuming fuel at a rate of 0.6 gallons per hour.**

c. Write the equation of this line in slope-intercept form. (Use the variables as stated in the problem.)

**Slope-intercept form of a line:**

***y* = *mx* + *b*, where *m* = slope and *b* = *y***-**intercept(vertical intercept)**

**Equation using the variables as stated on the problem: *g* = 0.6*h* + 5**

6. Determine if the following represents a function. Explain why or why not.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Number of questions answered correctly* | 1 | 18 | 10 | 18 | 27 |
| *Score* | 15 | 36 | 22 | 46 | 87 |

**No; there is more than one output for input “18.”**

**In the context of the situation, if the number of questions answered correctly is 18, the score should be either 36 or 46, but not both.**

7. If , find .

**means “find the value of the function when the input .”**

**=**

8. Find the domain and range of the functions. Write each answer using interval notation.

a. *y* =  b. *y* =

**a. The denominator cannot equal zero, for it would give us an undefined expression.**

**Domain (possible values of the input, *x*):**

**Since the denominator cannot equal 0, dividing the numerator “3” by a positive or a**

**negative quantity, we will only obtain positive or negative outcomes, respectively.**

**Range (possible values of the output, *y*):**

**b.** **The radicand of a square root cannot be negative, thus**

***Reminder: When we multiply or divide both sides of an inequality by the same negative quantity (in this case we***

***divided by 1), the direction of the inequality symbol must be reversed.***

**Domain:**

**We can only use *x*-values less than or equal to 6, thus taking the square root of will**

**result in a nonnegative number, and the range of this function is *y* ≥ 0.**

**Range:**