

#1-3, Translate each into a math equation or expression.

1. The product of 5 and a number is 13. $5x=13$ or $5 \cdot x=13$ or $(5)(x)=13$

2. Fourteen less than half a number is the same as the sum of eight and the number.

$$\frac{1}{2}x - 14 = 8 + x \quad \text{or} \quad .5x - 14 = 8 + x$$

3. Five more than the quotient of eleven and a number

$$5 + 11 \div x \quad \text{or} \quad 5 + \frac{11}{x}$$

#4-5, Write an equation which represents each situation.

4. a. Mrs. January bought a Dr. Pepper for \$1.59 and paid \$3.05 for each gallon of gas she pumped. The total she owed was \$45.19. Let g represent the gallons of gas.

$$1.59 + 3.05g = 45.19$$

b. Solve your equation

$$14.3 \text{ gallons}$$

5. a. Sending a package through the US mail cost \$3.50 plus \$0.25 per ounce. Sending a package through FedEx costs \$4.75 plus \$0.10 per ounce. At what weight will the two companies charge the same?

$$3.50 + .25x = 4.75 + .10x$$

b. Use your equation for #5 to decide which business you should use to send a package weighing 8.5 oz.

$$\begin{array}{l} \text{Mail} \\ 3.50 + .25(8.5) \\ \$5.62 \end{array}$$

$$\begin{array}{l} \text{FedEx} \\ 4.75 + .10(8.5) \\ \$5.60 \end{array}$$

7. Convert: 88 cm = $.96$ yards? (2.54 cm = 1 inch)

$$\frac{88 \text{ cm}}{1} \left(\frac{1 \text{ in}}{2.54 \text{ cm}} \right) \left(\frac{1 \text{ ft}}{12 \text{ in}} \right) \left(\frac{1 \text{ yd}}{3 \text{ ft}} \right) = \frac{88}{91.44} = .96 \text{ yds}$$

8. Convert: 35 feet per second = 23.86 miles per hour? (1 mile = 5280 ft)

$$\frac{35 \text{ ft}}{1 \text{ sec}} \left(\frac{1 \text{ mi}}{5280 \text{ ft}} \right) \left(\frac{60 \text{ sec}}{1 \text{ min}} \right) \left(\frac{60 \text{ min}}{1 \text{ hr}} \right) = \frac{126000}{5280} = 23.86$$

9. 35 is 42% of what number?

$$\frac{35 = .42(x)}{.42} = 83.33$$

10. What percent of 250 is 18?

$$\begin{array}{l} x(250) = 18 \\ x = .072 \\ 7.2\% \end{array}$$

11. A salesman earns a base salary of \$36,000 plus 2% commission on sales. His total earnings in one year was \$45,500, how much did he sell?

$$36,000 + .02x = 45,500$$

$$\$475,000$$

12. The Amazon rain forest usually gets 225 days of rain per year. Last year this decreased by 15%. How many rainy days last year?

$$225(.85) = 191.25 \text{ days}$$

13 The population of marmots in one district of the forest 2013 is approx. 125% of what it was in 2012. If there were 42 in 2012, how many now?

$$42(1.25)$$

$$52.5 \text{ marmots}$$

14. A dinner costs \$56 plus tax. If the tax rate is 5%, what is the total bill for the dinner?

$$56 + .05(56) \quad \text{or} \quad 56(1.05)$$

\$58.80

15. A Kelly jacket costs \$89.00 before tax and \$94.79 after the sales tax is included. What is the tax rate?

$$89 + (x)89 = 94.79 \quad \text{or} \quad 89(x) = 94.79$$

6.5%

16. On a scale map of New York city 3 inches represents 20 actual miles. Therefore, 6.4 inches would represent how many miles?

$$\frac{3 \text{ in}}{20 \text{ mi}} = \frac{6.4 \text{ in}}{x \text{ miles}}$$

cross multiply
 $3x = 128$ **$x = 42.67 \text{ mi}$**

17. Jupiter is so large, its gravity is tremendous. For example, a 110 pound high school girl would weigh 260 pounds on Jupiter. How much would a 152 pound high school boy weigh?

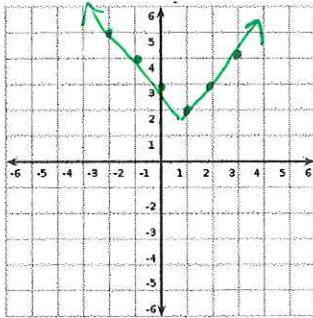
$$\frac{110 \text{ earth}}{260 \text{ jup.}} = \frac{152}{x}$$

359.27 lbs

#18-19, Graph each using a table of values. Please plot 5 points.

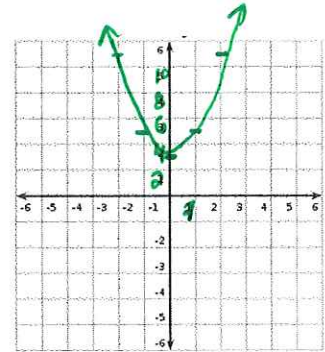
18. $y = |x - 1| + 2$

x	y
-2	5
-1	4
0	3
1	2
2	3
3	4



19. $y = 2x^2 + 3$

x	y
-2	11
-1	5
0	3
1	5
2	11



20. If $f(x) = -3x + 20$ and $g(x) = x - 10$ then find $f(-2)$ and $g(5)$

$$f(-2) = -3(-2) + 20$$

$$f(-2) = 6 + 20$$

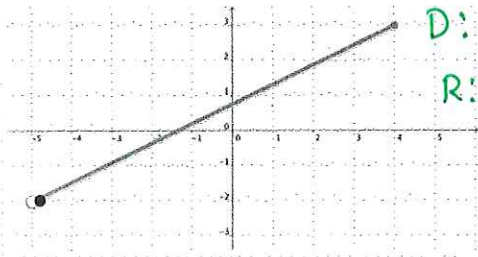
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$$g(5) = 5 - 10$$

-5

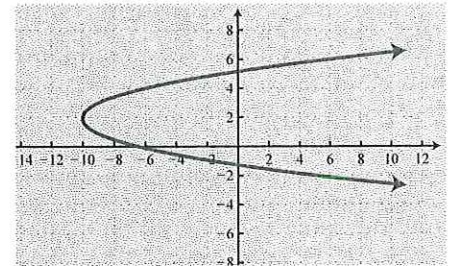
#21-22, Find the domain and range of each graph.

22.



D: $-5 \leq x \leq 4$

R: $-2 \leq y \leq 3$

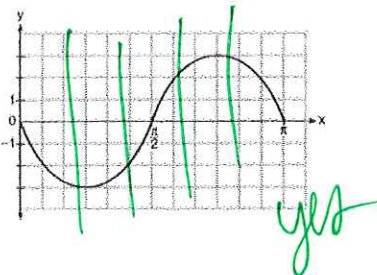


D: $x \geq -10$

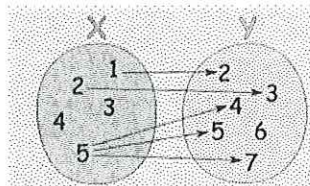
R: \mathbb{R}

#24-26, Is the relationship a function?

24.

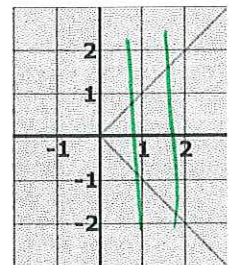


25.



NO

26.



NO