

**Pre-EOC Assessment**

**Algebra1 #2**

**Wahkiakum School District**



1. Order the following numbers from least to greatest:  $3\pi$ ,  $\sqrt{62}$ ,  $8.7 \times 10^0$ ,  $\frac{19}{2}$ 
  - a.  $\frac{19}{2}$ ,  $3\pi$ ,  $8.7 \times 10^0$ ,  $\sqrt{62}$
  - b.  $\sqrt{62}$ ,  $8.7 \times 10^0$ ,  $3\pi$ ,  $\frac{19}{2}$
  - c.  $8.7 \times 10^0$ ,  $3\pi$ ,  $\frac{19}{2}$ ,  $\sqrt{62}$
  - d.  $3\pi$ ,  $\sqrt{62}$ ,  $\frac{19}{2}$ ,  $8.7 \times 10^0$
  
2. If  $y = |x| + 3$ , then when is y a positive number?
  - a. always
  - b. when  $x > -3$
  - c. when  $x > 3$
  - d. never
  
3. Simplify  $\sqrt{20}$ 
  - a. 10
  - b.  $4\sqrt{5}$
  - c.  $2\sqrt{5}$
  - d.  $5\sqrt{2}$
  
4. Solve the equation for a:  $d = vt + \frac{1}{2}at^2$ 
  - a.  $a = \frac{2d}{vt^3}$
  - b.  $a = \frac{d - vt}{t^2}$
  - c.  $a = \frac{2(d - vt)}{t^2}$
  - d.  $a = \frac{2d - vt}{t^2}$

5. Simplify the expression:  $\frac{(x^{-2}y^{10})^2}{x^5y^{-3}}$

a.  $\frac{y^{17}}{x}$

b.  $\frac{y^{15}}{x^5}$

c.  $\frac{y^{23}}{x^9}$

d.  $\frac{y^{26}}{x^7}$

6. Determine what values of  $x$  the expression  $\sqrt{5-x}$  is defined for. Express your answer with an inequality.

Write your answer on the line.

**What are the defined values of  $x$ ? \_\_\_\_\_**

7. Solve:  $\frac{3x-1}{5} = -8$

a.  $\frac{41}{5}$

b.  $-\frac{41}{5}$

c.  $-13$

d.  $13$

8. Which equation is  $y = \frac{1}{3}x - 5$  in standard form?

a.  $-\frac{1}{3}x + y = -5$

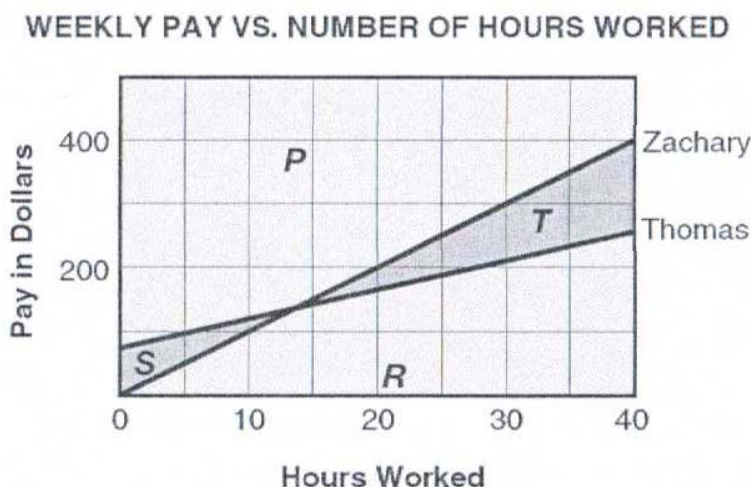
b.  $\frac{1}{3}x - y = 5$

c.  $x - 3y = 15$

d.  $-x + 3y = -15$

9. Tara's cell phone plan costs \$39.00 a month, which includes 100 text messages. After she uses all of her text messages, it will cost her \$.15 per text message.
- Write an equation or inequality that could be used to determine the total cost of her cell phone bill after her first 100 text messages.
  - If Tara only wants to spend \$43 on her cell phone bill, how many text messages can she send?

10. Fred, Thomas, and Zachary worked at the ice cream store in the mall. Last week, Fred earned more money than Thomas, but less than Zachary. The graph shows the money earned by Zachary and Thomas.



Which area of the graph represents Fred's possible weekly pay?

- P
- R
- S
- T

11. The equation  $13 - 2|x + 3| = 5$  has two real solutions.

Determine the **negative** solution of the equation.

Write your answer on the line.

**What is the negative solution of the equation?** \_\_\_\_\_

12. Write an equation of the line that passes through the pair of points. (-5, -2), (3, -1)

- a.  $y = \frac{1}{8}x + \frac{11}{8}$
- b.  $y = \frac{1}{8}x - \frac{11}{8}$
- c.  $y = -\frac{1}{8}x - \frac{11}{8}$
- d.  $y = \frac{1}{8}x + \frac{8}{11}$

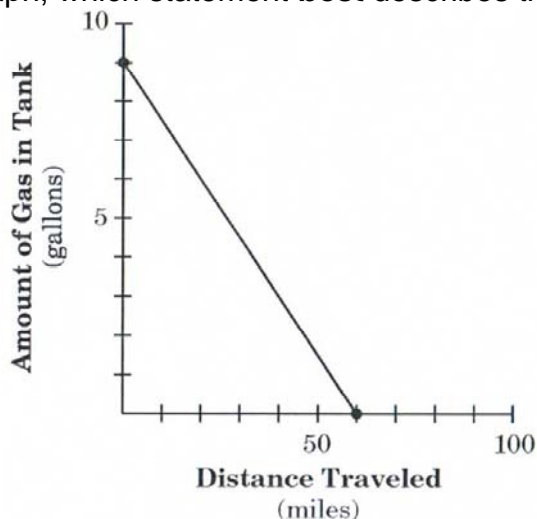
13. Which of these is the equation of a line with y-intercept (0, 2) and slope  $\frac{1}{3}$ ?

- a.  $y = \frac{1}{3}x + 2$
- b.  $y = 2x + \frac{1}{3}$
- c.  $\frac{1}{3}y = 2x$
- d.  $2y = \frac{1}{3}x$

14. A 1,500-gallon tank contains 200 gallons of water. Water begins to run into the tank at the rate of 75 gallons per hour. When will the tank be full but not overflowing?

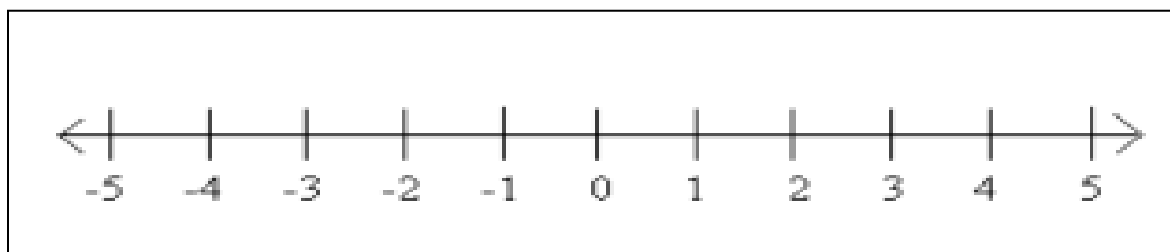
- a. 7 hours, 8 minutes
- b. 17 hours, 20 minutes
- c. 20 hours
- d. 22 hours, 40 minutes

15. According to the graph, which statement **best** describes the slope?



- As the distance traveled increases by 20, the amount of gas in the tank decreases by 3.
  - As the distance traveled decreases by 3, the amount of gas in the tank increases by 20.
  - As the distance traveled increases by 30, the amount of gas in the tank increases by 2.
  - As the distance traveled decreases by 20, the amount of gas in the tank decreases by 3.
16. Solve the following inequality for  $x$ :  $-4 < 3x + 2 \leq 14$ .

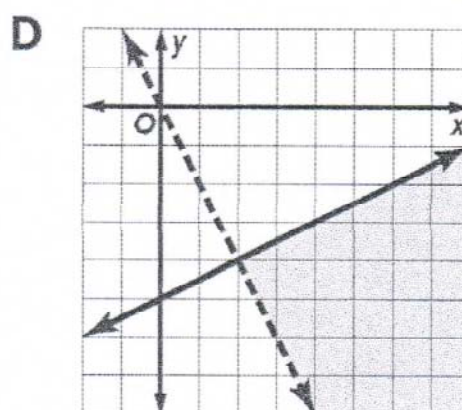
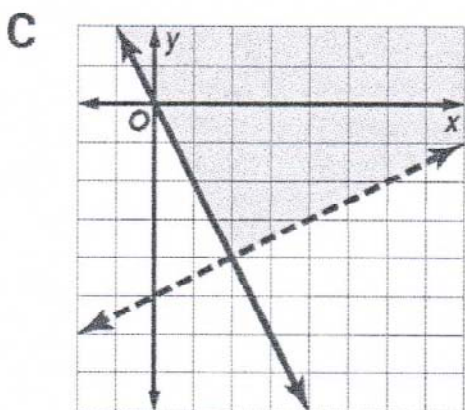
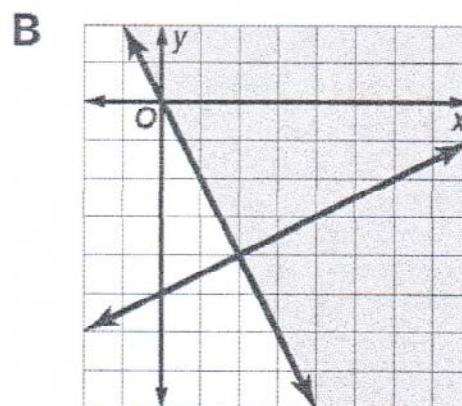
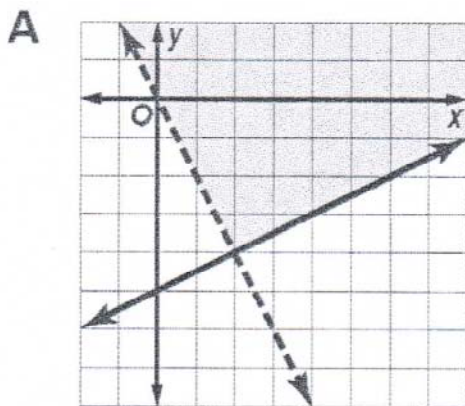
Display the set of solutions that makes the compound inequality true by graphing them on the number line below.



17. Which is the graph of the solution set of the system of inequalities?

$$x - 2y \leq 10$$

$$2x + y > 0$$



18. Write an equation of the line that is perpendicular to  $y = \frac{1}{2}x + 8$  and goes through  $(-4, 5)$ .

a.  $y = -\frac{1}{2}x + 3$

b.  $y = \frac{1}{2}x + 7$

c.  $y = -2x + 8$

d.  $y = -2x - 3$

19. Only chocolate and vanilla ice cream cones are sold at an ice cream store. In one day, the number of chocolate cones sold was 1 less than twice the number of vanilla cones sold. A total of 158 cones were sold that day.

Let  $c$  = the number of chocolate cones sold.

Let  $v$  = the number of vanilla cones sold.

- Write equations to determine the number of chocolate cones sold that day.
- Use the equations to determine the number of chocolate cones sold that day.

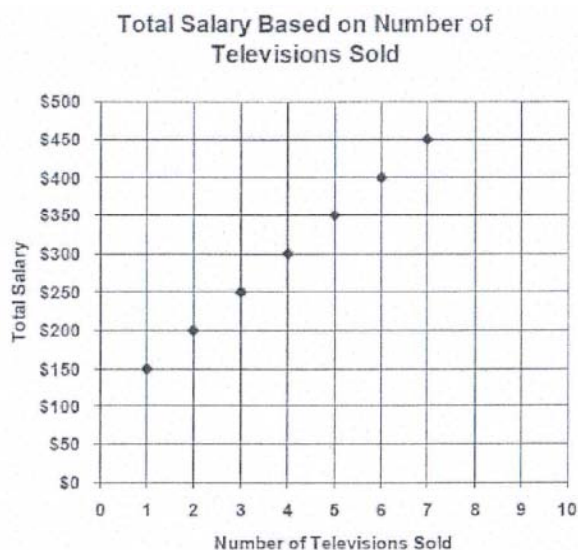
Show your work using words, numbers, and/or diagrams.

20. In 2000, 5500 people attended the State B basketball tournament. The enrollment has been increasing 2% annually. Select the equation that would determine the total number of people who attend  $t$  years after 2000.

- a.  $y = 5500(.02)^x$
- b.  $y = 5500(0.2)^x$
- c.  $y = 5500(1.02)^x$
- d.  $y = 5500(1.2)^x$



21. The chart shows the amount of total salary (commission plus base salary) paid to employees of a store that specializes in big screen televisions.



Which equation best represents the total salary (T) that an employee makes for selling any number of television sets (n)?

- $T = 50n + 100$
  - $T = 100(n + 50)$
  - $T = 100n + 50$
  - $T = 50(n + 100)$
22. You are a full time employee at a marketing firm. In order to maintain fulltime status you must work a minimum of 25 hours a week, and you cannot work more than 45 hours in a week. You make \$20 per hour.

- Define the domain and range in the context of the problem.
- Write your answer on the line.

**Domain:** \_\_\_\_\_ **Range:** \_\_\_\_\_

23. Mr. Shindler begins traveling east on Interstate 90 from Spokane with a full tank of gasoline. His car has a 15-gallon gas tank and gets 30 miles per gallon during highway travel.

*Let  $m$  = the number of miles Mr. Shindler has driven*

*Let  $g$  = the number of gallons of gas remaining in his tank*

- **Select and justify** in the answer box which equation describes the relationship between the number of miles Mr. Shindler has traveled and the number of gallons remaining in his gas tank.

a.  $g = 15 - 30m$

b.  $m = 30g - 15$

c.  $g = 15 - \frac{m}{30}$

d.  $m = \frac{30}{g} - 15$

Show your work using words, numbers, and/or diagrams.

24. Which function best represents the values in the table below?

$x$	$f(x)$
-3	-27
-1	-1
0	0
2	8
5	125

a.  $f(x) = x^3$

b.  $f(x) = \sqrt{x}$

c.  $f(x) = \frac{1}{x}$

d.  $f(x) = |x|$

25. Look at the function:

$$f(x) = 2x^2 - 4x + 5$$

- Evaluate  $f(x)$  at  $f(-3)$ .
- Write your answer on the line.

**What is  $f(-3) =$  \_\_\_\_\_**

26. Which best describes the difference(s) between the graphs of  $f(x) = -5x + \frac{3}{4}$  and  $g(x) = -10x + \frac{3}{4}$ ?

- a. The graph of  $f(x)$  is twice as steep as the graph of  $g(x)$ .
- b. The graph of  $f(x)$  is half as steep as the graph of  $g(x)$ .
- c. The graph of  $f(x)$  has a y-intercept of 5 while  $g(x)$  has a y-intercept of 10.
- d. Both A and C are true.

27. Graph A is the graph of  $y = 2(3)^x$  and graph B is the graph of  $y = 3(2)^x$ .

Which statement about the two graphs is true?

- a. Both graphs A and B rise at the same rate.
- b. Graph B rises at a faster rate than graph A.
- c. Graph A rises at a faster rate than graph B.
- d. The y-intercept of graph A is above the y-intercept of graph B.

28. Solve the equation  $3^x = 729$ .

- a.  $x = 5$
- b.  $x = 6$
- c.  $x = 243$
- d.  $x = 726$

29. Marcy recorded and graphed the daily height of a growing plant. Marcy's graph was linear. Which table could be Marcy's data?

**A**

Day	Height (inches)
1	6.25
2	7.00
3	7.75
4	8.50
5	9.25

**B**

Day	Height (inches)
1	6.25
2	7.75
3	8.00
4	8.50
5	9.00

**C**

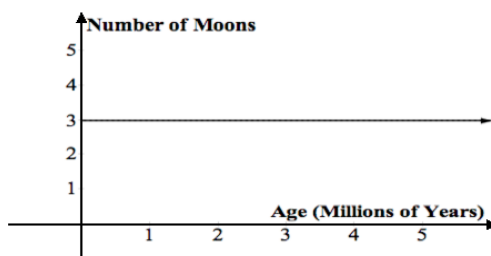
Day	Height (inches)
1	6.25
2	6.26
3	6.27
4	6.32
5	6.33

**D**

Day	Height (inches)
1	6.25
2	6.75
3	7.05
4	7.25
5	8.05

30. This graph shows the relationship between the age of a planet in millions of years and the number of moons the planet has.

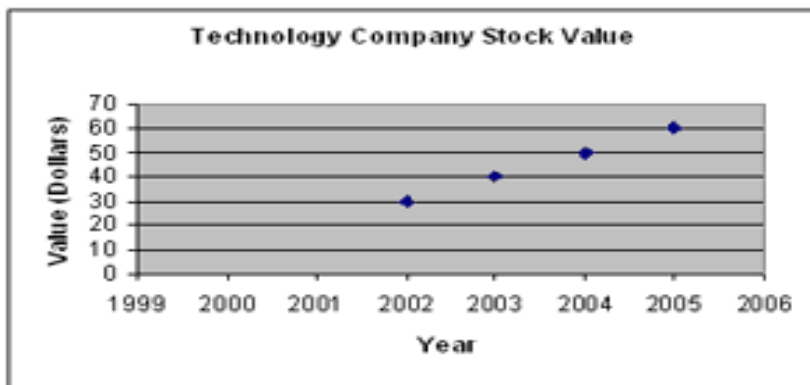
Which of these statements is true about the graph?



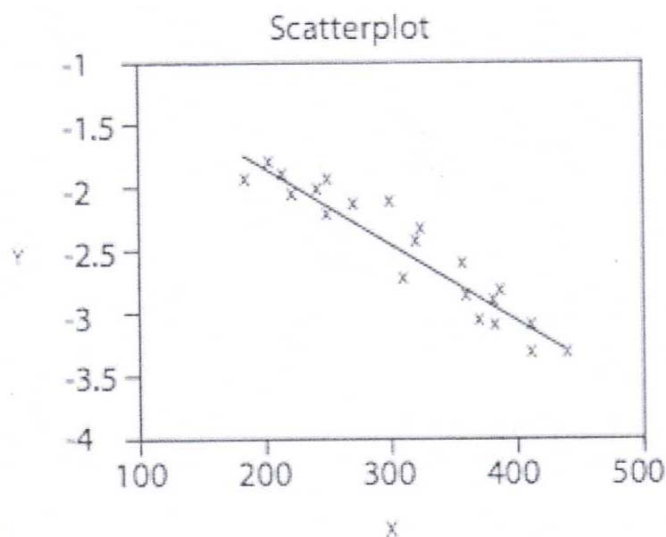
- The dependent variable is the number of moons.
- The independent variable is the number of moons.
- Since the number of moons is staying the same, there is no dependent variable.
- Since the number of moons is staying the same, there is no independent variable.

31. Brad and Tom are comparing their classes' scores on a math test. Both of their classes had mean scores of 80 on the test, but Brad's class had a range of 6 while Tom's class had a range of 30. If the highest possible score was 100, which class had the LOWEST score in it?
- Brad's class had the lowest score in it.
  - Tom's class had the lowest score in it.
  - The lowest score occurred in both classes.
  - It cannot be determined from the information.
32. A college professor at the University of Washington surveyed 150 students at the university. The students were asked if they prefer in class or take home tests. The professor drew the conclusion: "One out of four college students prefer take home tests." Explain why this conclusion is misleading.
- The professor surveyed a small sample of the population at one university but made the conclusion about the entire population of college students.
  - The survey question was biased toward in class tests.
  - The students were not selected randomly.
  - The sample size was too small.
33. At a particular company, every employee receives a 4% cost-of-living increase to their salary.
- What impact does this cost-of-living increase have on the mean and on the range of employee salaries at the company?
- The mean increases but the range does not change.
  - The mean does not change but the range increases.
  - The mean and range both increase.
  - The mean and range do not change.

34. The graph shows the stock value for a technology company from 2002 to 2005. From this graph, draw a line that fits the data and determine what is the most likely value of the stock for the year 2000?



- a. \$0  
b. \$10  
c. \$20  
d. \$30
35. Which term best describes the scatterplot below?



- a. Strong Positive correlation  
b. Strong Negative correlation  
c. No correlation  
d. Weak correlation