

Name: \_\_\_\_\_  
 Period: \_\_\_\_\_

*Key*

Algebra 1 EOC Practice Test #1  
 Part 1 – No Calculator

1. Christian was looking at his stats from the football games this past season. He is a quarterback and the stats for his total passing yards per game are shown.

- LE Lowest Yardage: 15 *75* Mean: 106.1  
 First Quartile: 93 Standard Deviation: 35.0  
 Median: 105  
 Third Quartile: 127  
 UE Highest Yardage: 151

In his lowest yardage game, he was hurt and could only play for a few minutes. If he had been able to play in the game and his passing yards was actually 75 yards, how does that affect the statistics? Place a check in the box that describes the new value.

|                     | Stays the Same                      | Increases                           | Decreases                           |
|---------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Median              | <input checked="" type="checkbox"/> |                                     |                                     |
| Interquartile Range | <input checked="" type="checkbox"/> |                                     |                                     |
| Mean                |                                     | <input checked="" type="checkbox"/> |                                     |
| Standard Deviation  |                                     |                                     | <input checked="" type="checkbox"/> |

*} only would change before Q1  
 → #1s are closer together*

2. Tyrone is doing a proof for solving the equation  $3(5x + 2) = -24$ . Some of his work is shown.

| Statement            | Reason                           |
|----------------------|----------------------------------|
| 1. $3(5x + 2) = -24$ | 1. Given                         |
| 2. $15x + 6 = -24$   | 2. <i>DIST</i>                   |
| 3. $15x = -30$       | 3. <i>Sub Prop</i>               |
| 4. $x = -2$          | 4. Division Property of Equality |

Which is the correct reason for line 3?

- Commutative Property of Addition
- Distributive Property
- Subtraction Property of Equality
- Identity Property of Addition
- Associative Property of Multiplication

3. Aaron goes to his favorite hamburger joint with a friend and orders two hamburgers and two French fries. His total cost is \$10.50. The next week, he goes with two other friends. They order four hamburgers and three French fries. This time the total is \$19.50. Write two equations that could be used to determine the cost for hamburgers (h) and French fries (f).

$2h + 2f = 10.50$   
 $4h + 3f = 19.50$

4. Which of the following will result in an irrational number? Select all that apply.

- Sum of a rational number and a rational number
- Sum of a rational number and an irrational number  *$3/4 + \sqrt{10}$*
- Product of a rational number and a rational number
- Product of a rational number and an irrational number  *$1/2(\sqrt{10}) = 1/2\sqrt{10}$*

# Algebra 1 EOC Practice Test #1

## Part 1 - No Calculator

$$ax^2 + bx = c$$

5. Marie solved a quadratic equation by completing the square. The problem she solved is given. Complete the four blanks shown for one of her steps and the solution.

$$x^2 + 4x - 2 = -1$$

$$(x + 2)^2 = 5$$

$$x = -2 \pm \sqrt{5}$$

$$x^2 + 4x + 4 = 1 + 4$$

$$\sqrt{(x+2)^2} = \sqrt{5}$$

$$x+2 = \pm\sqrt{5}$$

$$x = -2 \pm \sqrt{5}$$

$$x = -2 \pm \sqrt{5}$$

6. What are the zeros for the function  $b(t) = (t - 5)(t + 3)(t - 2)$ ?

- A.  $\{-5, -2, 3\}$
- B.  $\{-3, 2, 5\}$**
- C.  $\{-5, -3, 2\}$
- D.  $\{-2, 3, 5\}$

Take opposite  
or set = to 0.

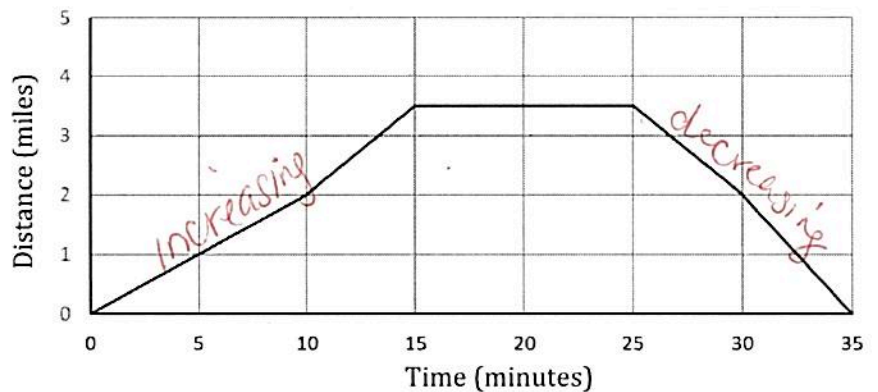
7. Sherri is visiting her grandmother. The graph provided shows her trip in distance (in miles) away from her house based on time (in minutes).

What interval is her distance increasing?

$$0 \leq t \leq 15$$

What interval is her distance decreasing?

$$25 \leq t \leq 35$$



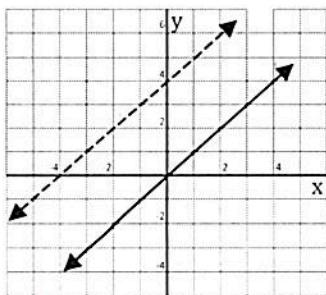
8. The function  $y = f(x)$  is shown in all the graphs below as a solid line. Match each transformed function with the corresponding dashed line.

$$y = 2f(x)$$

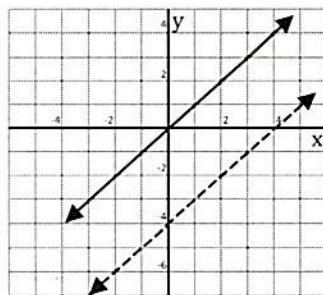
$$y = \frac{1}{2}f(x)$$

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

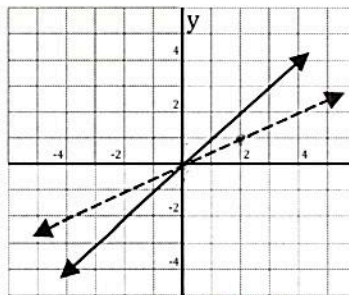
$$y = f(x) - 4$$



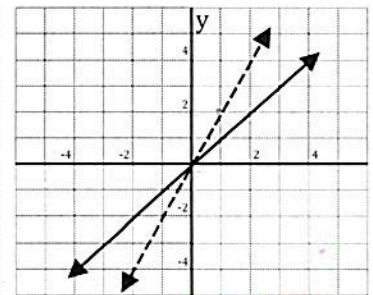
$$y = f(x) + 4$$



$$y = f(x) - 4$$



$$y = \frac{1}{2}f(x)$$



$$y = 2f(x)$$

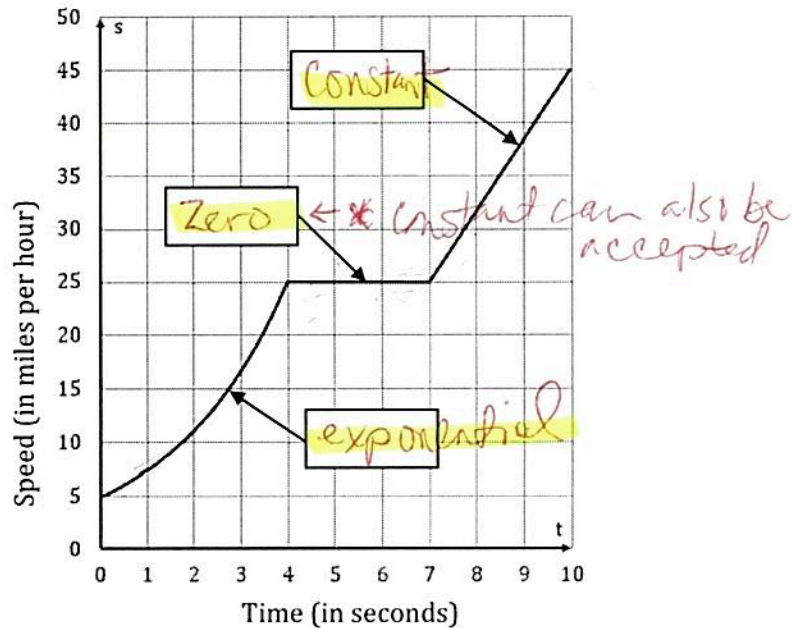
# Algebra 1 EOC Practice Test #1

## Part 1 - No Calculator

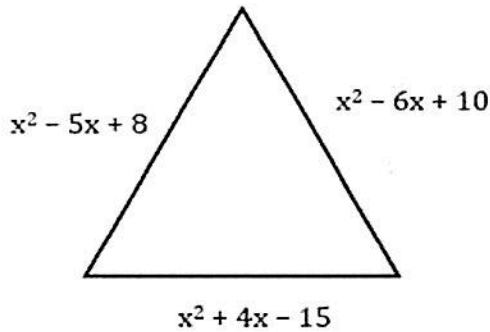
9. Cindy is driving in her car and her speed is shown on the graph with respect to time. Label each section of the graph with the type of rate of change between speed and time.

Rates of change to choose from:

- Zero
- Constant
- Exponential



10. What is the perimeter of the polygon shown?



$$(x^2 - 5x + 8) + (x^2 - 6x + 10) + (x^2 + 4x - 15)$$

$$3x^2 - 7x + 3$$

11. Emily wants to go to Europe. Her plane ticket costs \$510 and each day she will pay \$120 for a hotel and \$60 for food. Which of the following equations represents the number of  $d$  days she can go if she is willing to pay \$2310 for the whole trip?

- A.  $510 + (120 + 60)d = 2310$
- B.  $510 + 120 + 60d = 2310$
- C.  $510 + 120d + 60 = 2310$
- D.  $510d + 120d + 60d = 2310$

12. The population of a city is growing. Two different models have been created to predict the growth and the predictions are shown in the table.

| Year | f(x)  | g(x)  |
|------|-------|-------|
| 1900 | 76.1  | 81.2  |
| 1920 | 122.4 | 105.1 |
| 1940 | 164.8 | 136.1 |
| 1941 | 167.0 | 137.9 |
| 1950 | 186.0 | 154.8 |
| 1960 | 207.9 | 176.2 |
| 1990 | 274.3 | 259.6 |
| 2010 | 318.2 | 336.1 |

Which model is exponential? Use the table to justify your choice.

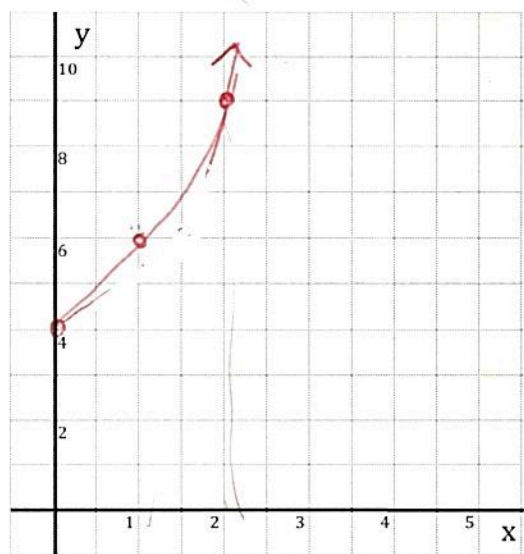
$g(x)$  is exponential

$f(x)$  has a constant rate of change  
 $g(x)$  increasing rate of change

# Algebra 1 EOC Practice Test #1

## Part 1 - No Calculator

13. Graph an exponential function that has a y-intercept at 4 and a rate of growth of 50%.



$$y = 4(1.50)^x$$

$$y = ab^x$$

| x | y |
|---|---|
| 0 | 4 |
| 1 | 6 |
| 2 | 9 |

14. Which step should be placed in the blank to make the solution correct?

$$\sqrt[2]{x^{10}} = \underline{\hspace{2cm}} = x^5$$

power  
root

A.  $x^{\frac{10}{5}}$

**C.**  $x^{\frac{10}{2}}$

B.  $x^{10-5}$

D.  $x^{10-2}$

15. Based on the data gathered by the US Census Bureau, the population of the United States is shown on the graph to the right from 1900 to 2010 (in ten-year increments). What is the domain of the data as shown?

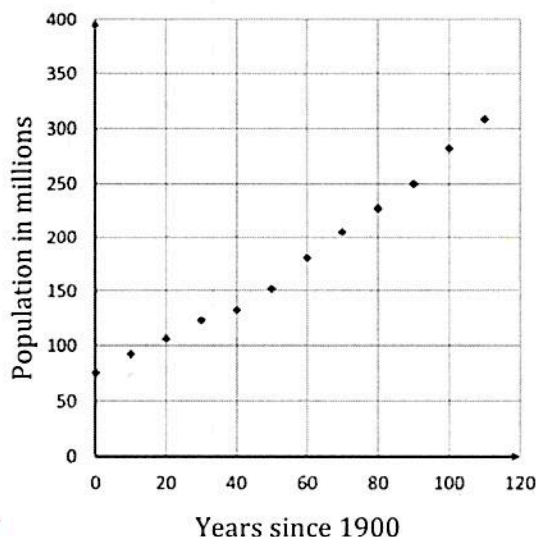
Discrete Graph

A.  $1900 \leq t \leq 2010$

B.  $0 \leq t \leq 110$

C.  $t \geq 0$

**D.**  $t = \{0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110\}$



16. Solve for x.

$$\frac{1}{3}(9x + 3) = \frac{2}{5}(10x + 5)$$

$$\begin{aligned} 3x + 1 &= 4x + 2 \\ -3x &\quad -3x \\ \hline 1 &= x + 2 \\ -2 &\quad -2 \\ \hline -1 &= x \end{aligned}$$

# Algebra 1 EOC Practice Test #1

# Part 1 - No Calculator

17. Rebecca has a college savings plan. The equation that represents how much money she expects to have saved after  $x$  years is  $f(x) = 5000(1.08)^x$ .

$$y = ab^x$$

What does the value 5000 represent in the equation? Select all that apply.

- The initial amount of money saved
- The initial amount of time
- The amount it increases in value each year
- The time it takes to be worth \$5,000
- The y-intercept

What does the value 1.08 represent in the equation? Select all that apply.

- The value increases by 8% each year
- The initial amount saved
- The rate of growth is 8% each year
- The rate of growth is 108% each year
- The time it takes to have \$5,000 saved

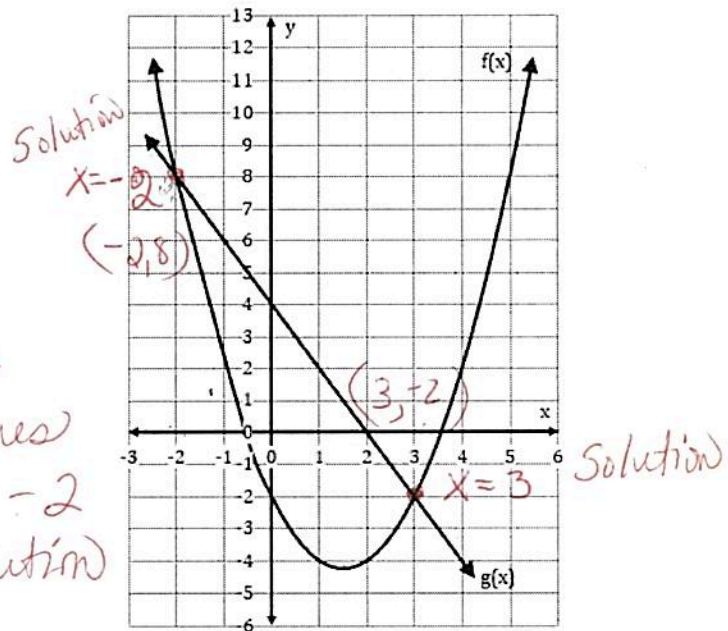
18. The graph of functions  $f(x) = x^2 - 3x - 2$  and  $g(x) = -2x + 4$  are given.

Using the graph, what is the negative solution to  $f(x) = g(x)$ ?

$$x = -2$$

Why is this the solution?

The 2 functions intersect at 2 points. The  $x$  values at the intersections are  $-2$  &  $3$ . The negative solution is  $-2$ .

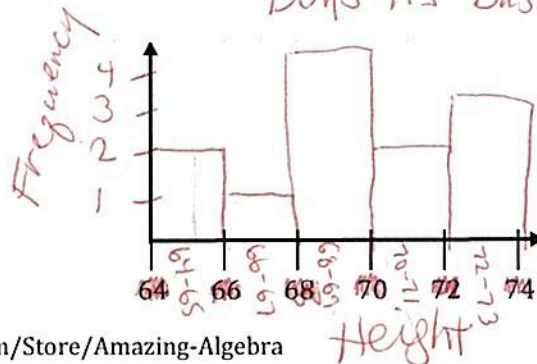


19. Fill out the frequency table and create a histogram for the following heights (in inches) for the boy's high school basketball team.

Boys HS Basketball Team

67, 69, 68, 68, 72, 64, 65, 72, 69, 70, 71, 72

| Height (inches) | Frequency |
|-----------------|-----------|
| 64 - 65         | 1   2     |
| 66 - 67         | 1   1     |
| 68 - 69         | 4         |
| 70 - 71         | 1   2     |
| 72 - 73         | 11   3    |

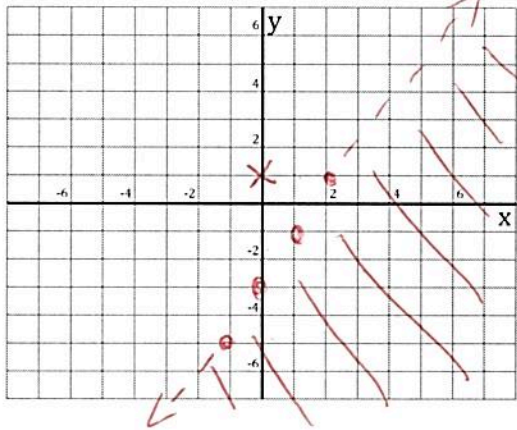


# Algebra 1 EOC Practice Test #1

## Part 1 - No Calculator

20. Graph the inequality  $y < 2x - 3$ .

$1 < -3$   
False  $> <$  dotted  
 $\leq \geq$  solid

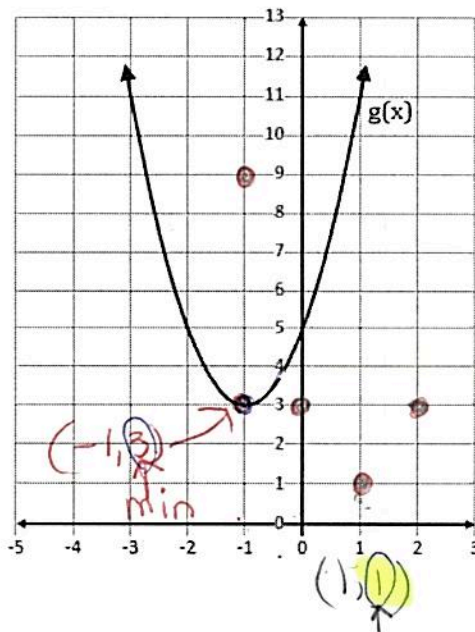


True; touch test point  
False: shade away  
Test point (0, 1)

21. Two functions are shown. The table shows values for  $f(x)$  and the graph represents  $g(x)$ .

| x  | f(x) |
|----|------|
| -2 | 19   |
| -1 | 9    |
| 0  | 3    |
| 1  | 1    |
| 2  | 3    |

min



Which function has a lower minimum? (Table)

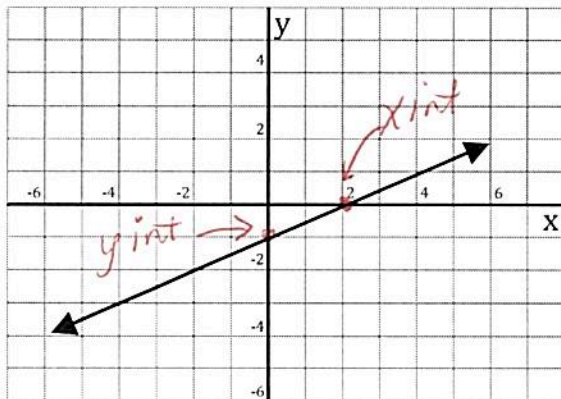
$f(x)$

(y value of vertex)  
 $f(x) = 1$   
 $g(x) = 3$

What is the value of the lower minimum?

$f(x) = 1$

22. Label the following key features on the graph of the function  $f(x)$  shown: x-intercept(s) and y-intercept(s).



x int: (2, 0)  
y int: (0, -1)

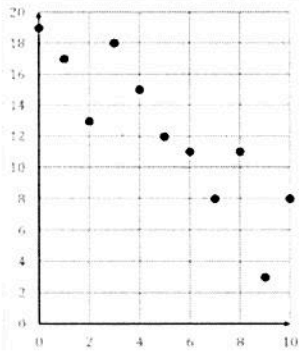
Is the graph increasing or decreasing? increasing

# Algebra 1 EOC Practice Test #1

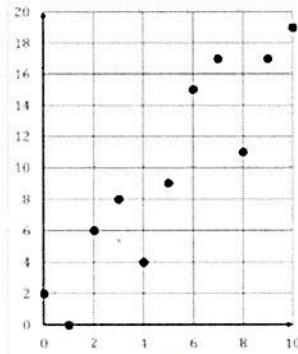
# Part 1 - No Calculator

23. Match the approximate correlation coefficient to the graph it represents.

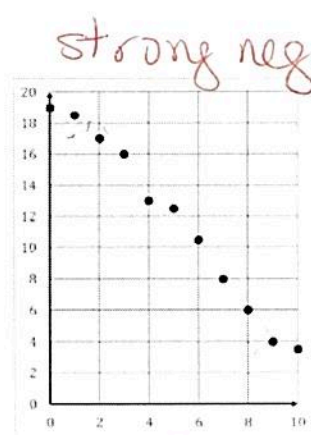
- A.  $r = -0.85$
- B.  $r = -0.40$
- C.  $r = 0.40$
- D.  $r = 0.85$



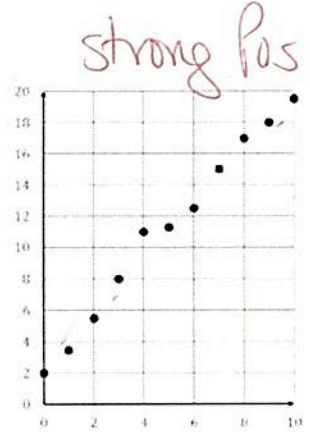
**B**



**C**



**A**



**D**

24. What is the factored form of  $36x^4 - 4y^2$ ?

$4(9x^4 - y^2)$   
 $4(3x^2 - y)(3x^2 + y)$   
 $(6x^2 - 2y)(6x^2 + 2y)$

25. Which of the following is equivalent to  $x^2 + 3x + 2$ ? Select all that apply.

- $(x^2 + 2x + 5) + (x^2 + x - 3)$   $2x^2 + 3x - 2$
- $(3x^2 + 2x + 3) + (2x^2 + x + 1) = x^2 + 3x + 2$
- $(x + 1)(x + 2) = x^2 + 2x + x + 2 = x^2 + 3x + 2$
- $x(x^2 + 3x + 2)$
- $(x + 5)(x - 2) + 12$   
 $x^2 + 3x - 10 + 12 = x^2 + 3x + 2$

26. Which of the following tables of values represent a function? Circle all that apply.

**Yes**

| x  | y |
|----|---|
| -2 | 5 |
| 3  | 7 |
| 5  | 8 |
| -3 | 2 |
| 2  | 3 |

**No**

| x   | y |
|-----|---|
| (2) | 3 |
| 5   | 4 |
| 7   | 2 |
| (2) | 7 |
| -1  | 3 |

**No**

| x | y  |
|---|----|
| 1 | -1 |
| 1 | 10 |
| 1 | 6  |
| 1 | -2 |
| 1 | 1  |

**Yes**

| x  | y  |
|----|----|
| -3 | 5  |
| -1 | 2  |
| 0  | 5  |
| 5  | -2 |
| -6 | -5 |

**Yes**

| x   | y  |
|-----|----|
| 2   | -5 |
| (3) | -9 |
| 1   | 5  |
| -2  | 3  |
| (3) | -9 |

same value

**Yes**

| x  | y |
|----|---|
| -4 | 6 |
| -6 | 6 |
| 6  | 6 |
| 0  | 6 |
| 3  | 6 |

X's can't repeat  
Y's can!

