

Question 1 **GRT - Menu 5 1**

Which value of x makes the **equation** $0.25(x + 10) - 4 = 0.5(x - 40)$ **true**?

- A. 74
- B. 50
- C. -74
- D. -50

Question 2 **GRT - Menu 5 1**

What is the **solution** to $5m - 2(3m - 5) = 7(m - 2)$?

- A. 3
- B. 7
- C. 2
- D. No Solution

Question 3 **GRA - Menu 6 5**

What is the **slope** of the line represented by $3x - 8y = 16$?

- A. -2
- B. $\frac{3}{8}$
- C. $\frac{16}{3}$
- D. $-\frac{8}{3}$

Question 4 **STO $x \rightarrow 5$**

Which expression is **equivalent** to $6x^2 + 5x - 4$?

- A. $(2x + 1)(3x - 4)$
- B. $(6x - 1)(x + 4)$
- C. $(6x + 1)(x - 4)$
- D. $(2x - 1)(3x + 4)$

Question 5 **STO $m \rightarrow 5$**

Which expression is **equivalent** to $m^2 + 3m - 18$?

- A. $(m - 6)(m + 3)$
- B. $(m + 6)(m - 3)$
- C. $(m - 9)(m + 2)$
- D. $(m + 9)(m - 2)$

Question 6 **STO $x \rightarrow 5$**

Which expression is **equivalent** to $(3x^2)^3(16x^8)^{\frac{1}{4}}$?

- A. $48x^{10}$
- B. $54x^8$
- C. $48x^8$
- D. $54x^{10}$

Question 7 **GRT - Menu 5 1- point (x,?)**

If $f(x) = 2(x + 1)^2 - 7$, what is the value of $f(-3)$?

- A. 1
- B. -15
- C. 0.4
- D. -1

Question 8 **GRT - Menu 5 1- point (x,?) And GRA - Menu 6 5 OR HOY VUX**

What is the equation of the line that passes through the point $(-3, 5)$ and has a **slope of zero**?

- A. $x = -3$
- B. $y = 5$
- C. $x = 5$
- D. $y = -3$

Question 9 GR and GRS Menu 3 6

Which ordered pair is in the **solution** set of $y < \frac{1}{3}x - 4$?

- A. (3, - 3)
- B. (9, - 2)
- C. (1, - 3)
- D. (- 1, - 4)

Question 10 GRT Menu 5 1 , Zero

What is the positive **solution** to the equation $\frac{1}{2}x^2 - 8 = 0$? Record your answer and fill in the bubbles below:

+
-	0	0	0	0	0	0	0
	1	1	1	1	1	1	1
	2	2	2	2	2	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4
	5	5	5	5	5	5	5
	6	6	6	6	6	6	6
	7	7	7	7	7	7	7
	8	8	8	8	8	8	8
	9	9	9	9	9	9	9

Question 11 KE Exponential Knowledge

The population of a small town in Texas is 4,000. The population **increases** with a rate 4% per year. Which expression can be used to find the population after x number of years?

- A. $P(x) = 0.96(4,000)^x$
- B. $P(x) = 1.04(4,000)^x$
- C. $P(x) = 4,000(0.96)^x$
- D. $P(x) = 4000(1.04)^x$

Question 12 LS Linear , (0,0) is your first point

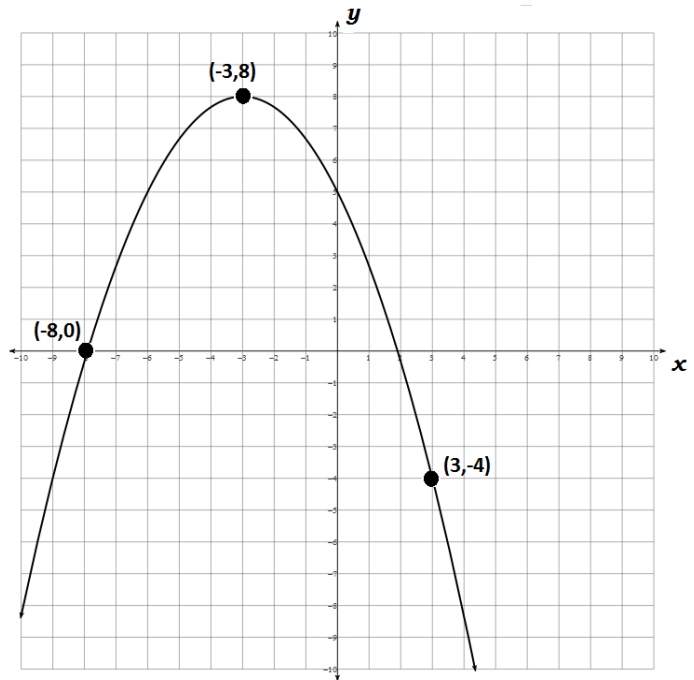
The value of y is **directly** proportional to the value of x . If $y = 4$ when $x = 15$, what is the value of x when $y = 12$? Record your answer and fill in the bubbles below:

+	-	·	·	·	·	·	·
-	0	0	0	0	0	0	0
	1	1	1	1	1	1	1
	2	2	2	2	2	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4
	5	5	5	5	5	5	5
	6	6	6	6	6	6	6
	7	7	7	7	7	7	7
	8	8	8	8	8	8	8
	9	9	9	9	9	9	9

Question 13 QK Quadratic Knowledge OR LS Quadratic Menu 4 1 6

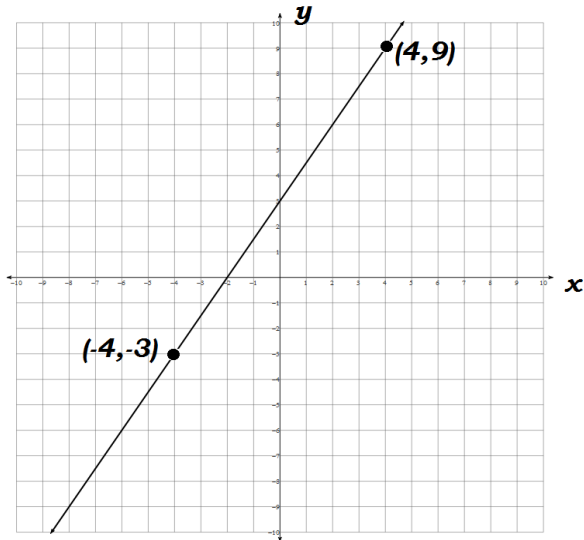
The graph of quadratic function f is shown on the grid. What is the **y-intercept** of the graph of f ? Record your answer and fill in the bubbles below:

+	-	·	·	·	·	·	·
-	0	0	0	0	0	0	0
	1	1	1	1	1	1	1
	2	2	2	2	2	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4
	5	5	5	5	5	5	5
	6	6	6	6	6	6	6
	7	7	7	7	7	7	7
	8	8	8	8	8	8	8
	9	9	9	9	9	9	9



Question 14 KL Knowledge Linear

The graph of linear function g is shown on the grid. What is the **zero** of g ?
 Record your answer and fill in the bubbles below:



+
-	0	0	0	0	0	0	0
	1	1	1	1	1	1	1
	2	2	2	2	2	2	2
	3	3	3	3	3	3	3
	4	4	4	4	4	4	4
	5	5	5	5	5	5	5
	6	6	6	6	6	6	6
	7	7	7	7	7	7	7
	8	8	8	8	8	8	8
	9	9	9	9	9	9	9

Question 15 GR1 , GR2

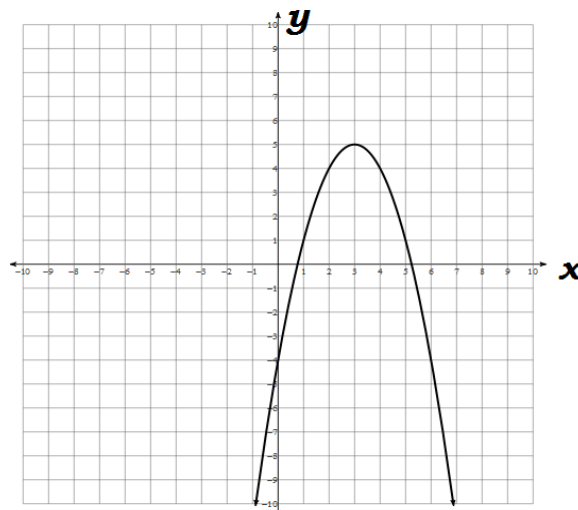
The graph of $f(x) = x^2$ was transformed to create the graph of $g(x) = (x + 2.5)^2$. Which of these describes this **transformation**?

- A. A horizontal shift to the right 2.5 units.
- B. A horizontal shift to the left 2.5 units.
- C. A vertical shift down by 6.25 units.
- D. A vertical shift up 6.25 units.

Question 16 GR

The graph of a quadratic function is shown on the grid. Which function is best represented by this graph?

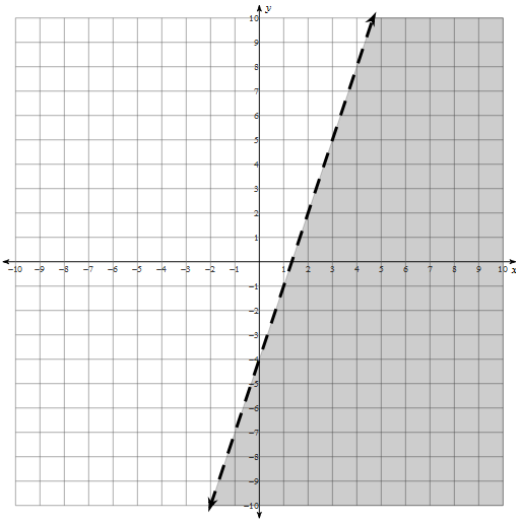
- A. $f(x) = -x^2 + 6x - 4$
- B. $f(x) = -x^2 + 8x + 3$
- C. $f(x) = -x^2 - 5x + 3$
- D. $f(x) = -x^2 - 6x + 4$



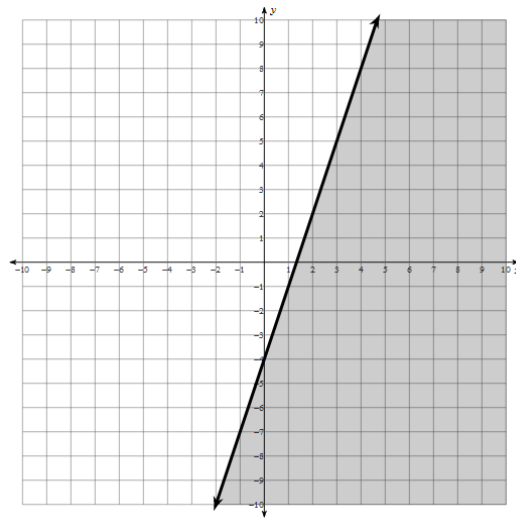
Question 17 GR

Which **graph** best represents the solution set of $y \leq 3x - 4$

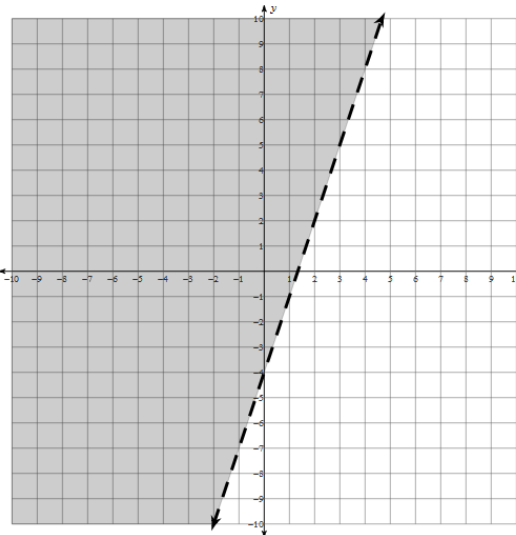
A.



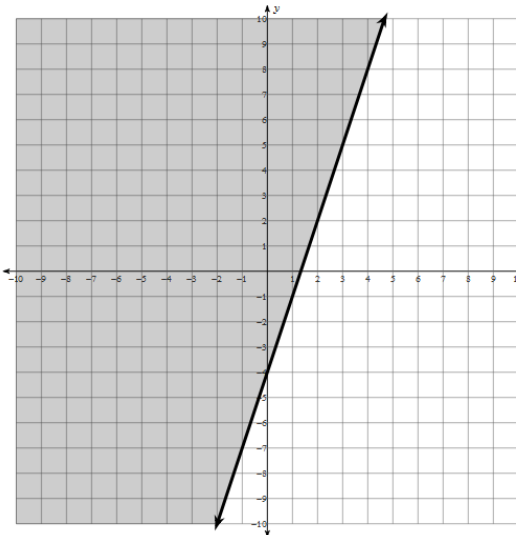
C.



B.



D.



Question 18 GRT Menu 5 1 , Point (x,y)

What is the **equation** in slope-intercept form of the line that passes through the **points** $(-2, 7)$ and $(5, 10)$?

- A. $y = \frac{3}{7}x + \frac{55}{7}$
- B. $y = \frac{7}{3}x + \frac{55}{7}$
- C. $y = \frac{3}{7}x - 2$
- D. $y = \frac{7}{3}x - 2$

Question 19 GR1,GR2 , GRA Menu 6 4

What is the value of y in the **solution** to this system of equations $y = 3x - 5$ and $4x - y = 4$?

- A. 1
- B. -1
- C. -8
- D. 8

Question 20 LS-Linear Menu 4 1 3 or GRT Menu 5 1 , Point (x,y)

The **table** represents some points on the graph of a **linear** function.

x	y
-25	184
-19	145
-3	41
33	-193

Which equation represents the same relationship?

- A. $y = -\frac{13}{2}x + \frac{258}{12}$
- B. $y = \frac{2}{13}x + \frac{19}{12}$
- C. $y = -6x + 21$
- D. $y = -3x + \frac{140}{3}$

Question 21 KE Knowledge Exponentia

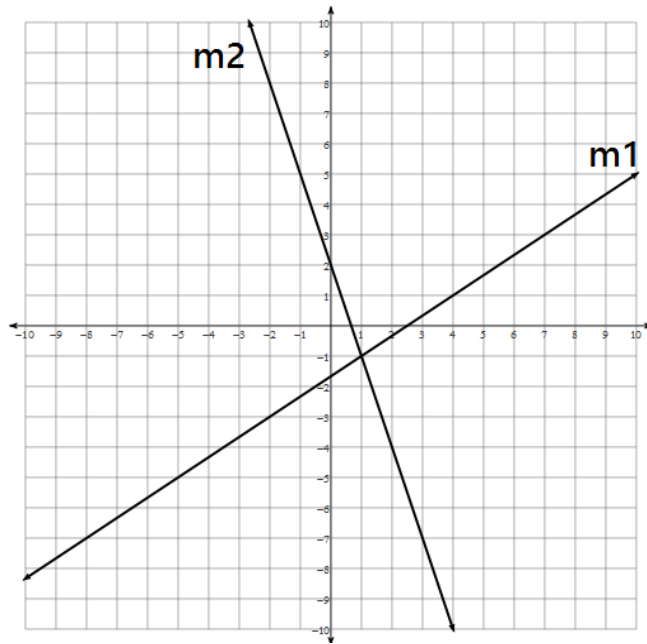
Which statement about the graph $y = 4\left(\frac{1}{2}\right)^x$ of is **true**?

- A. The graph crosses the y-axis at $(0, \frac{1}{2})$.
- B. The graph increases from left to right.
- C. The graph has a decay factor of $\frac{1}{2}$.
- D. The graph has a growth factor of 4.

Question 22 GR1 , GR2

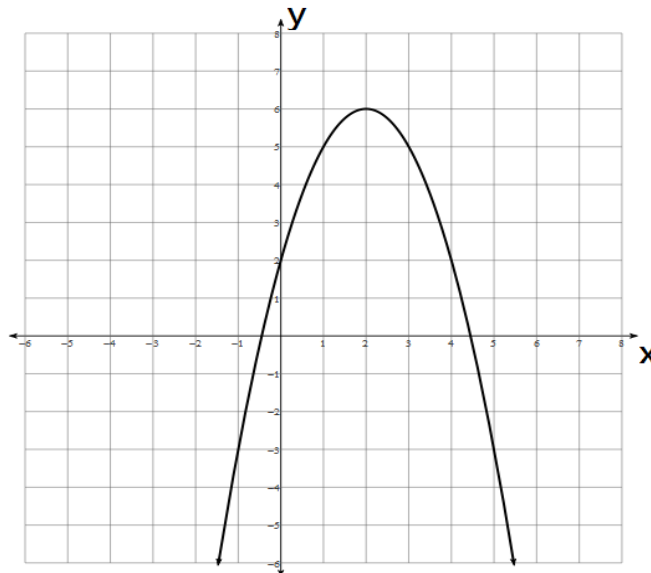
The **graphs** of lines m_1 and m_2 are shown on the grid. Which system of equations is best represented by this graph?

- A. $-2x + 3y = -5$
 $3x + y = 2$
- B. $2x + y = 5$
 $-x + 3y = 2$
- C. $5x - y = 6$
 $-4x + y = -1$
- D. $x + y = 0$
 $-2x + 5y = 1$



Question 23 KQ Knowledge Quadratic

The graph of a quadratic function is shown on the grid.



Which equation best represents the **axis of symmetry**?

- A. $x = 6$
- B. $y = 6$
- C. $y = 2$
- D. $x = 2$

Question 24 GR1 , GR2

A student graphed $f(x) = x + 3$ and $g(x) = 3f(x)$ on the same coordinate grid. Which statement describes how the **graphs** of f and g are related?

- A. The graph of f is shifted 3 units up to create the graph of g .
- B. The graph of f is steeper than the graph of g .
- C. The graph of f is shifted 3 units down to create the graph of g .
- D. The graph of f is less steep than the graph of g .

Question 25 LS Quadratic Menu 4 1 6

The **table** below shows point on a **quadratic** graph:

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

Based on the table, which function can best be used to represent the table shown?

- A. $y = x^2 + 2x - 3$
- B. $y = x^2 + x - 7$
- C. $y = 2x^2 + 6x - 3$
- D. $y = 2x^2 + 3x - 4$

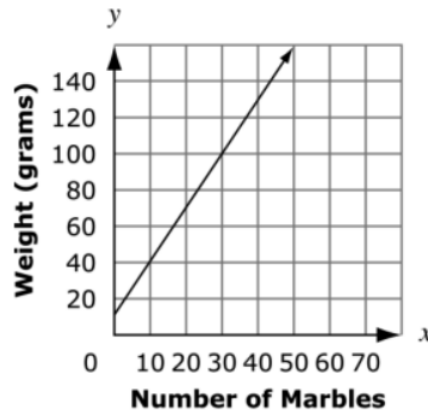
Question 26 Calculator

Which expression is equivalent to $\sqrt{72}$?

- A. $2\sqrt{6}$
- B. $6\sqrt{2}$
- C. $36\sqrt{2}$
- D. $12\sqrt{6}$

Question 27 LS Linear Menu 4 1 3 , Menu 6 5

The graph models the linear relationship between the weight of a jar with different number of marbles.



Which of these best represents the **rate of change** of the weight with respect to number of marbles in the jar?

- A. 16 grams per marble
- B. 2 grams per marble
- C. 3 grams per marble
- D. 6 grams per marble

Question 28 STO 5 → x , 6 → y

The area of a **rectangle** is $54x^8y^7$ square yards. If the **length** of the rectangle $6x^6y^5$ yards which expression represents the **width** of the rectangle in yards?

- A. $48x^2y^2$
- B. $9x^2y^2$
- C. $48x^{14}y^{12}$
- D. $9x^{14}y^{12}$

Question 29 GRT Menu 5 1 , Point(?,y)

The amount of relief that aspirin can give patients are modeled by the function $r(t) = 4t - \frac{t^2}{4}$, where r is the relief and t represent the time passed in hours since taking the medication. How many **hours** has passed if the relief r equals to 16?

- A. 6 hours
- B. 4 hours
- C. 2 hours
- D. 8 hours

Question 30 GRA , Menu 6 1

What is the **x-intercept** of the line represented by $-2x + 4y = 12$?

- A. -6
- B. $\frac{1}{2}$
- C. 3
- D. -2