Readiness A.2D, A.4A, A.6C, A.6F

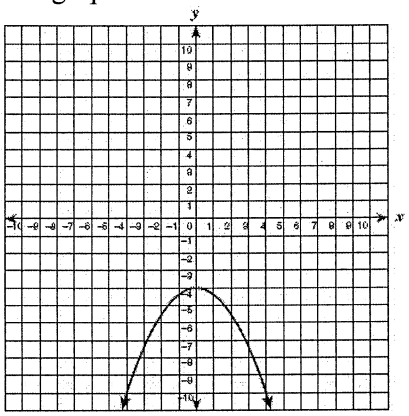
Supporting: A.2A, A.6A, A.6D, A.6E

RC: 2, 3

EOC – Graphing

Name: Key

1. Which function is the parent function of the graph below?



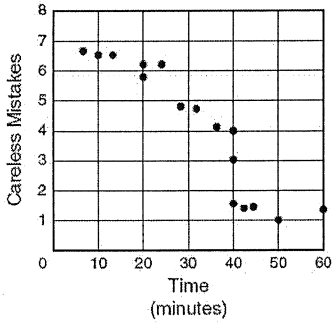
A $y = -2x$

B $y = x - 4$

C $y = x^2$

D $y = x$

2. A math class was given 1 hour to complete a test. The scatter plot below shows the relationship between the speed at which the students completed the test and the number of careless mistakes they made.



Which of the following describes the correlation between the number of minutes spent on the test and the number of careless mistakes made?

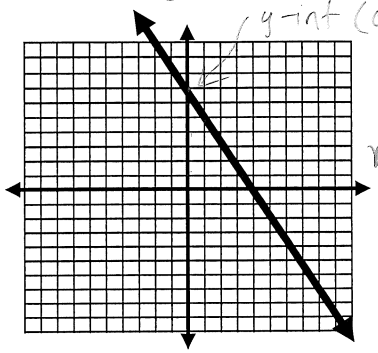
A No correlation

B Positive correlation

C Negative correlation

D Undefined correlation

3. Which is the equation of the graph?



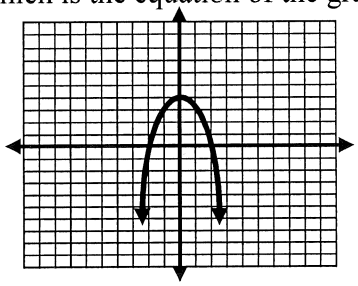
A $y = -2x + 8$?

B $y = -2x + 4$

C $y = x + 8$

D $y = \frac{1}{2}x + 4$

4. Which is the equation of the graph?



F $y = -x^2 + 4$

G $y = -x^2 - 4$

H $y = x^2 + 4$

J $y = x^2 - 4$

5. What is the equation of the line containing the points (7, 5) and (11, 9)?

A $y = 4x$

B $y = x - 2$

C $y = 2x - 2$

D $y = x + 2$

$m = \frac{\Delta y}{\Delta x} = \frac{9-5}{11-7} = \frac{4}{4} = 1$

$y - y_1 = m(x - x_1)$

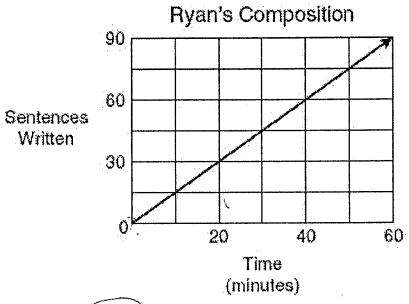
$y - 5 = 1(x - 7)$

$y - 5 = x - 7$

$+5 \quad +5$

$y = x - 2$

6. Ryan is writing a composition for homework. He decides to keep track of the number of sentences he writes compared to the time in minutes he works. The graph below shows the data he collected.



At what rate does Ryan write his composition? slope with labels (units)

$m = \frac{\Delta y}{\Delta x}$

30 sentences / 20 min

3 sentences / 2 min

1.5 sentences / 1 minute

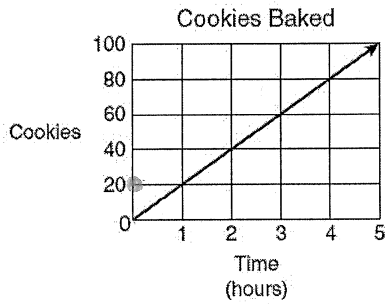
A 0.5 sentence per minute
B 1 sentence per minute
C 1.5 sentences per minute
D 2 sentences per minute

7. What is the equation of a line with an x-intercept of -3 and a y-intercept of 5?

(-3, 0) x-int
(0, 5) y-int
up 5
rt 3
$m = \frac{5}{3}$

A $y = \frac{3}{5}x + 5$
B $y = \frac{5}{3}x + 5$
C $y = 5x + \frac{5}{3}$
D $y = \frac{5}{3}x + 5$

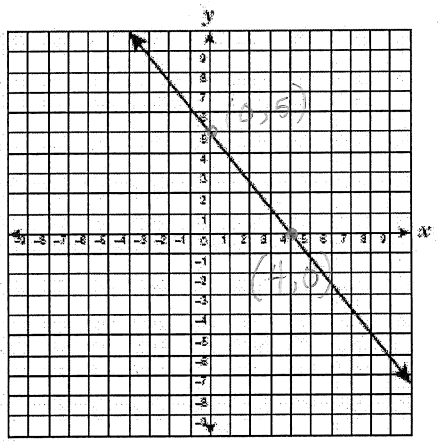
8. Mark and his friends are baking cookies for a bake sale. The graph below shows the total number of cookies they have compared to the number of hours they bake.



How would the graph change if Mark and his friends were given 20 cookies when they started baking? y-int would be (0, 20)

A The y-intercept would increase. ✓
B The slope would increase. X
C The y-intercept would decrease. X
D The slope would decrease. X

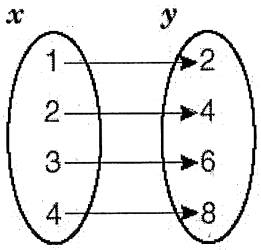
9. What are the x- and y-intercepts of the function graphed below?



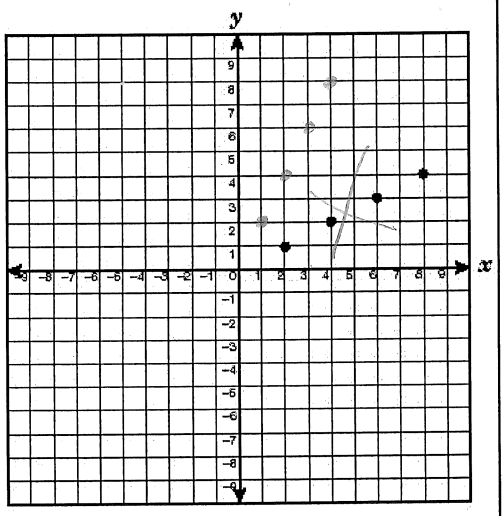
F (4, 0) and (5, 0)
G (4, 0) and (0, 5)
H (0, 4) and (5, 0)
J (0, 4) and (0, 5)

10. The function $f(x) = \{(1, 2), (2, 4), (3, 6), (4, 8)\}$ can be represented in several other ways. Which is NOT a correct representation of the function $f(x)$?

F



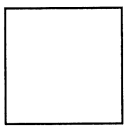
G



H x is a natural number less than 5 and y is twice x

J $y = 2x$ and the domain is $\{1, 2, 3, 4\}$

11. Which expression best represents the area of this square with sides of $4x^3y^2$?



$4x^3y^2$

A $4x^6y^4$ **B** $16x^3y^2$

C $16x^6y^4$ **D** $8x^3y^2$

12. Which equation describes the line that passes through the point (4, 7) and is parallel to the line represented by the equation $-3x + y = 4$?

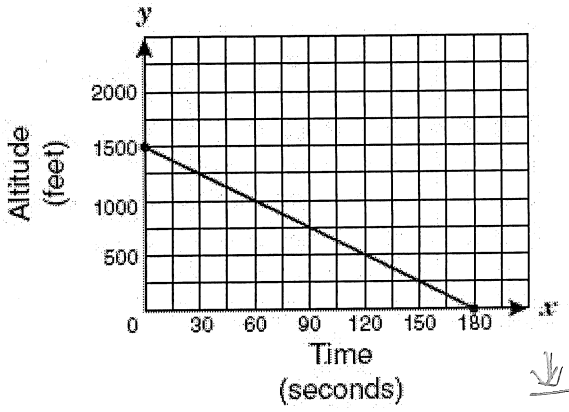
F $y = -3x + 19$

G $y = 3x - 5$

H $y = \frac{1}{3}x + 5\frac{2}{3}$

J $y = -\frac{1}{3}x + 8\frac{1}{3}$

13. The line segment on the graph shows the altitude of a landing airplane from the time its wheels are lowered to the time it touches the ground. Which of the following best describes the slope of the line segment?



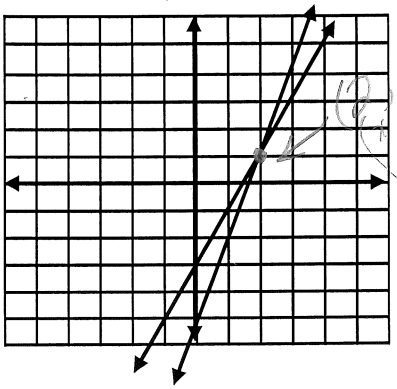
F The plane descends about 1 foot per 8 seconds.

G The plane descends about 8 feet per second.

H The plane descends about 1 foot per 2 seconds.

J The plane descends about 2 feet per second.

14. The graphs of the linear equations $y = 2x - 3$ and $y = 3x - 5$ are shown:

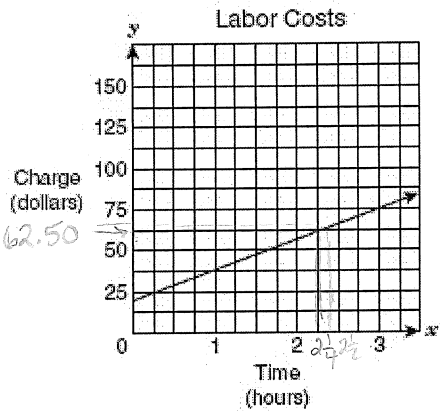


If $2x - 3 = 3x - 5$ what is the value of x?

F 2 **G** 1

H 9 **J** 10

15. Phil's Service Station uses the graph below to determine how much a mechanic should charge for labor for automobile repairs.



If the labor charge on an automobile repair bill was $67.50, for approximately how many hours, *h*, did the mechanic work?

F $2.25 < h < 2.50$

G $2.75 < h < 3.00$

H $2.00 < h < 2.25$

J $2.50 < h < 2.75$

16. How does the graph of $f(x) = x^2 - 7$ compare to the graph of $g(x) = x^2 + 5$?

A The vertex of $f(x)$ is 12 units lower.

B The vertex of $f(x)$ is 12 units higher.

C The vertex of $f(x)$ is 2 units to the left.

D The vertex of $f(x)$ is 2 units to the right.

17. The area of a parallelogram is $35p^6q^6$ square units. If the base of the parallelogram measures $5pq^2$ units, what is the height of the parallelogram? ($p \neq 0$ and $q \neq 0$)

F $7p^5q^4$

G $7p^6q^3$

H $30p^5q^4$

J $30p^6q^3$

18. Which of the following is $\frac{a^7b^6c^2}{a^2b^4}$ in simplest form?

A $a^9b^{10}c^2$ **B** $a^{14}b^{24}c^2$

C $\frac{a^7b^7c^2}{a^2b^4}$ **D** $a^5b^2c^2$

How will the graphs change?

19. How does the graph $y = 3x^2 + 10$ compare to the graph $y = 3x^2 - 5$?

The vertex (and y-int) of $y = 3x^2 + 10$ is 15 units higher than $y = 3x^2 - 5$.

20. How does the graph $y = -7x^2 + 6$ compare to the graph $y = -5x^2 + 6$?

The graph of $y = -7x^2 + 6$ is narrower than $y = -5x^2 + 6$. same y-int, both open down

21. How does the graph $y = x^2 - 4$ compare to the graph $y = -x^2 + 1$?

The graph of $y = -x^2 + 1$ is a reflection over the x-axis and the vertex (+y-int) is 5 units higher than $y = x^2 - 4$.

What is the new function?

22. If the graph of $y = 2x^2 - 3$ is translated up 3 units, what is the equation of the new graph?

$y = 2x^2 - 3$
$+3$

$y = 2x^2$

23. If the graph of $y = \frac{1}{2}x^2$ is reflected over the x axis, what is the equation of the new graph?

$y = -\frac{1}{2}x^2$

24. If the graph of $y = 5x^2 + 1$ is translated down 4 units, what is the equation of the new graph?

$y = 5x^2 + 1$
-4

$y = 5x^2 - 3$

25. If the graph of $y = -3x^2 - 1$ is translated up 9 units, what is the equation of the new graph?

$y = -3x^2 - 1$
$+9$

$y = -3x^2 + 8$

26. If the graph of $y = \frac{1}{4}x^2 + 6$ is translated down 2 units AND reflected over the x-axis, what is the equation of the new graph?

$y = \frac{1}{4}x^2 + 6$
-2

$y = \frac{1}{4}x^2 + 4$

reflected

$y = -\frac{1}{4}x^2 + 4$