TEST NAME: **Fall SOY Checkpoint Grade 8 Math Content**
TEST ID: **57**
GRADE: **08 - 12**
SUBJECT: **Mathematics**
TEST CATEGORY: **Start of Year Checkpoint**

Student: _____

Class: _____

Date: _____

Instructions

The Grade 8 Math test has two subparts. Each subpart contains different types of questions. To begin the test, click the "Next" arrow button at the top.

Read the passage - 'VH987463_directions' - and answer the question below:

VH987463_directions

Subpart 1 of this test contains different types of assessment questions in Grade 8 Math. You may make notes on scratch paper or use the Notepad tool within the online test. Make sure you answer all the questions. You MAY NOT use a calculator in Subpart 1 of this test.

1. Which equation has infinitely many solutions?

   A. $3x - 2 = 2 - 3x$

   B. $x + 3x + 6 = 6 + 4x$

   C. $2x + 7x - 5 = -9x + 5$

   D. $4x - 5x + 3 = -5x + 4x - 3$

2. Which statement describes a function that is not **linear**?

   A. For each input value, the output value is 3 times larger.

   B. The output value is found by multiplying the input value by itself.

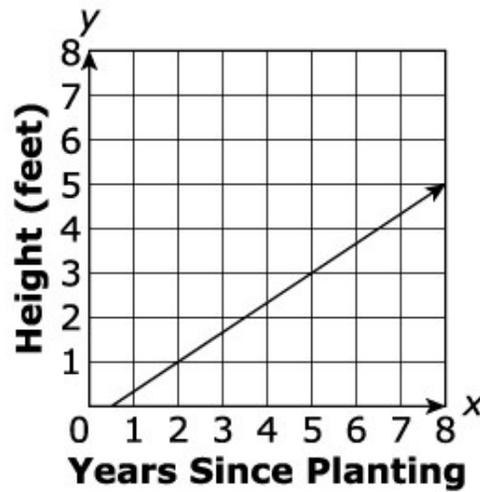   C. The output value is twice the input value, plus 4.

   D. As the input value increases by 1, the output value decreases by 5.

3. Consider the system of equations.

$$\begin{cases} y = \frac{2}{3}x + 1 \\ y = x \end{cases}$$

What is the solution to the system?

A. $(0, 0)$

B. $(0, 1)$

C. $(1, 1)$

D. $(3, 3)$

4. Jacob planted a seed that grew into a tree. The height of the tree, as a function of years since Jacob planted the seed, is shown in the graph below.


What is the meaning of the point (0.5, 0) on the graph?

A. The tree grew at a rate of 0.5 foot per year.

B. The tree was 0.5 foot tall when it was planted.

C. Jacob planted the seed 0.5 foot below the ground.

D. The tree started growing above ground 0.5 year after Jacob planted the seed.

5. For which graph would a straight line be **most** appropriately used to model the relationship between two variables?
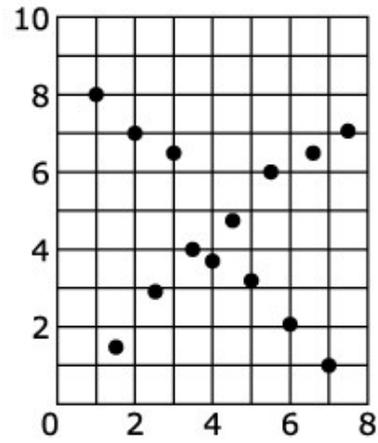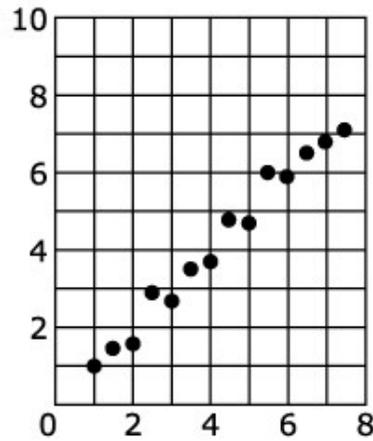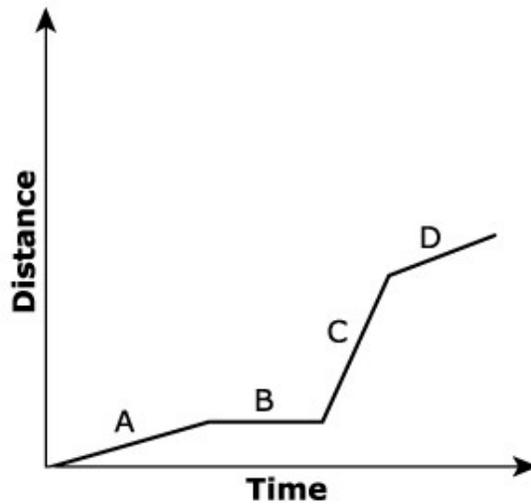
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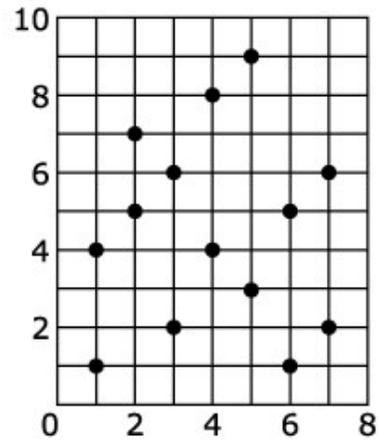
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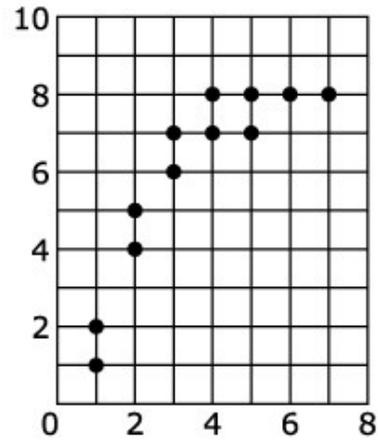
C.

D.

6. The graph shows the distance Ella travels from her house to the library. On her trip, Ella walks from her house to the bus stop, where she waits to get on the bus and rides to the library. Then, Ella walks to the library after getting off the bus.

Which statement **best** explains segment C of Ella's trip?

A. Ella stops and waits for the bus.

B. Ella walks to the bus stop at a slow, constant speed.

C. Ella rides the bus to the library, moving at a faster, constant speed.

D. Ella quickly walks to the library at a constant speed after getting off the bus.

7. Sam and Ryan are hiking different trails on a mountain. Sam's altitude during his hike can be represented by the expression $10h + 30$, where h is the number of hours he hikes. Ryan's altitude during his hike can be represented by the table:

Time (hours)	0	1	2	3
Altitude (feet)	50	70	90	110

Which statement is true?

A   Ryan starts at an altitude that is 10 feet higher than Sam's starting altitude.

B.   Sam starts at an altitude that is 20 feet higher than Ryan's starting altitude.

C.   After 4 hours, Sam will be at an altitude 60 feet above Ryan's location.

D.   After 4 hours, Ryan will be at an altitude 60 feet above Sam's location.

8. Liz launches a toy rocket. The height of the rocket as a function of time is represented in the graph.
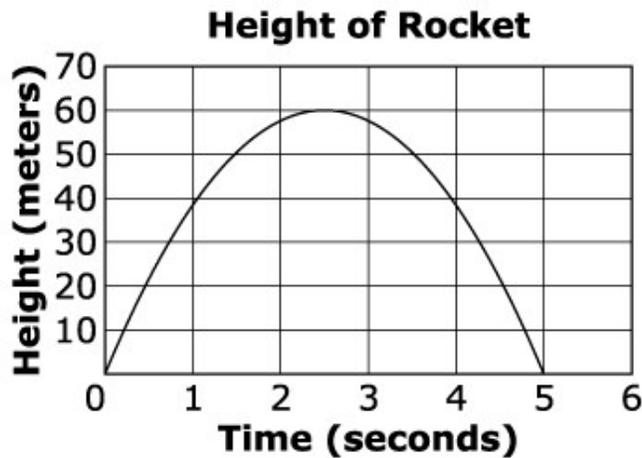
Height of Rocket

At what approximate time does the height of the rocket begin to decrease?

A   0 seconds

B.   2.5 seconds

C.   5 seconds

D.   60 seconds

9. A table of values is shown.

x	y
-2	8
0	-5
?	6
4	-3

What missing x-value would cause this relationship to **not** be a function?

A. 4

B. 2

C. 6

D. -5

Read the passage - 'VH986198_directions' - and answer the question below:

VH986198_directions

Subpart 2 of this test contains different types of assessment questions in Grade 8 Math. You may make notes on scratch paper or use the Notepad tool within the online test. Make sure you answer all the questions. You MAY use a calculator in Subpart 2 of this test.

10. Jack and Jill went to the store.

Jack bought 3 candy bars and 2 bags of candy for $\$5.25$.

Jill bought 2 candy bars and 5 bags of candy for $\$9.00$.

How much does each candy bar, x, cost and each bag of candy, y, cost?

A. $x = \$0.75$, $y = \$1.50$

B. $x = \$1.50$, $y = \$0.75$

C. $x = \$0.50$, $y = \$1.00$

D. $x = \$1.05$, $y = \$0.50$

11. The length of a turtle's shell, s, in millimeters, is related to the turtle's age in years, a, as described by the equation below.

$s = 55a + 37$

Which statements about the turtle are true?

Pick up to 6 answers.

A. The turtle's shell grows at rate of 37 mm per year.

B. The turtle's shell grows at rate of 55 mm per year.

C. When the turtle is hatched, its shell is 37 millimeters in length.

D. When the turtle is hatched, its shell is 55 millimeters in length.

E. When the turtle is 1 year old, its shell is $\frac{37}{55}$ millimeters in length.

F. When the turtle is 1 year old, its shell is 92 millimeters in length.

12. In which scatter plot is the pattern of association **most** linear?
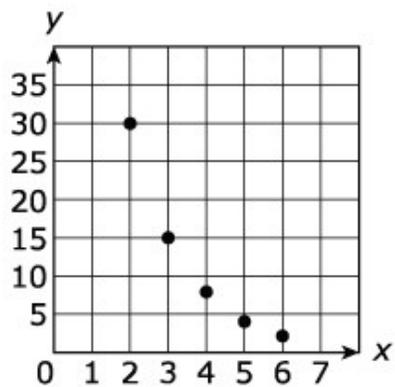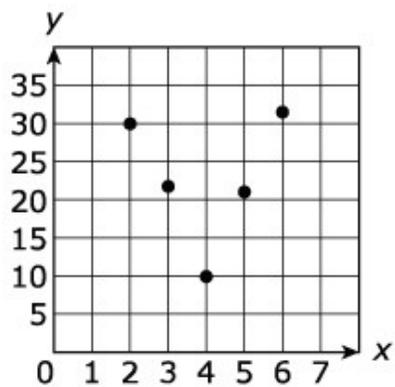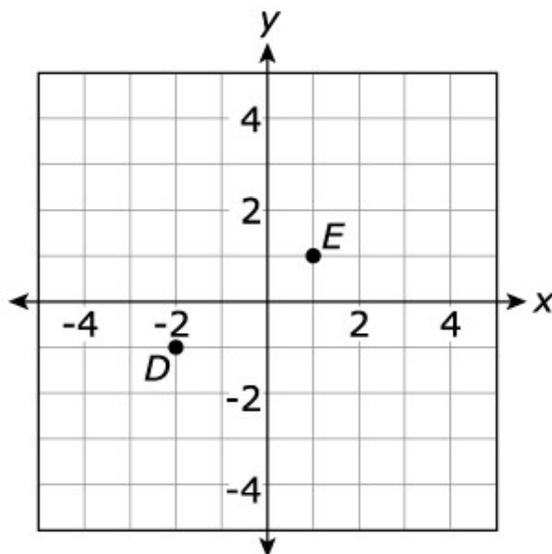
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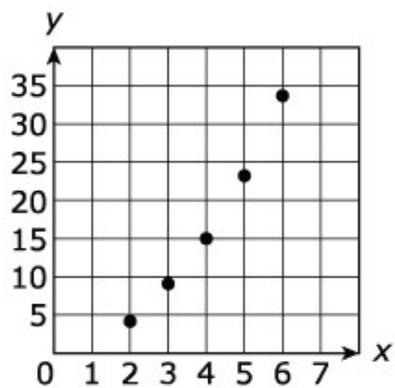
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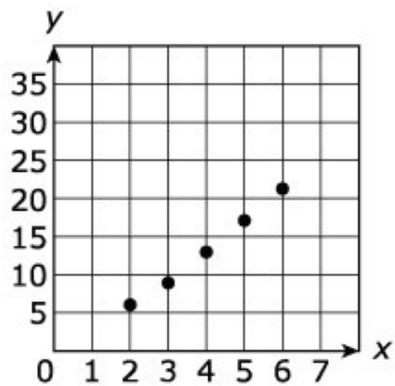
C.

D.

13. Which equations have infinitely many solutions?

Select **all** that apply.

Pick up to 5 answers.

A. $2x = 3x - x$

B. $3x = 3(2 + x)$

C. $4x = x + 4$

D. $-2x = -x - 2$

E. $x - 1 = 2x - (x + 1)$

14. Points D and E are graphed on the coordinate plane.

What is the distance, in units, between point D and point E?
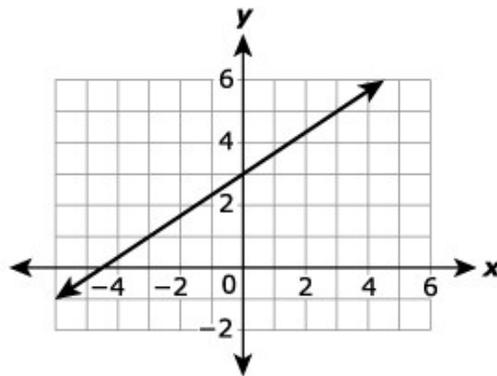
A. $\sqrt{5}$ units

B. 3 units

C. $\sqrt{13}$ units

D. 5 units

15. Identify **all** the linear functions with a rate of change greater than or equal to 1.5.

Pick up to 5 answers.

A.

x	y
−2	−5
0	2
2	9
4	16

B.

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

D.

y	−8	−4	0	4
x	−13	−8	−3	2

E. y is four more than three times the value of x

16. Point $P(-3, -2)$ and point $Q(4, 7)$ lie in the coordinate plane. What is the distance, in units, between points P and Q?

A. $\sqrt{10}$

B. $\sqrt{26}$

C. $\sqrt{130}$

D. $\sqrt{146}$

17. Which sets of ordered pairs represent a function? Select **all** that apply.
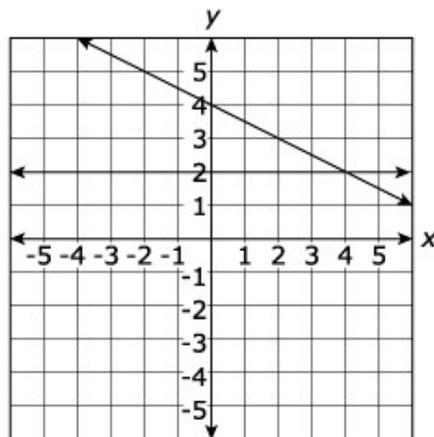
Pick up to 5 answers.

A. (1, 1), (1, 2), (1, 3), (1, 4)

B. (1, 1), (2, 2), (3, 3), (4, 4)

C. (1, 1), (2, 1), (3, 1), (4, 1)

D. (1, 4), (2, 4), (1, 3), (2, 3)

E. (1, 4), (2, 2), (3, 1), (4, 3)

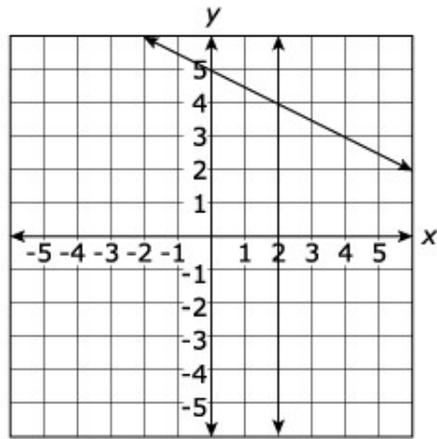18. What is the value of v in the equation $-25 = -(4v + 7) + 10$?

A. $v = 25$

B. $v = -7$

C. $v = 2$

D. $v = 7$

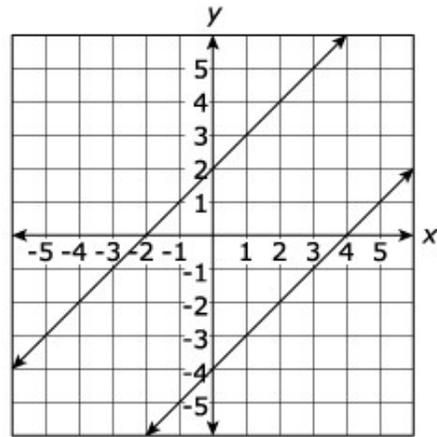19. The solution to a system of linear equations is $(4, 2)$. Which could be the graph of the system of equations?
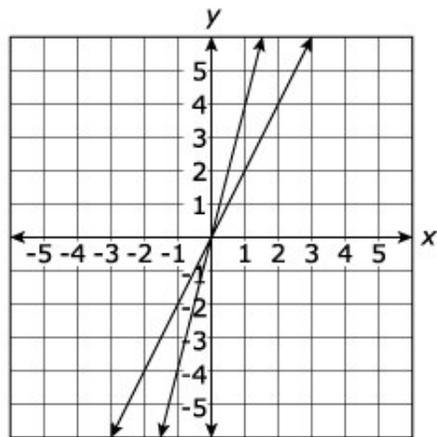
A.

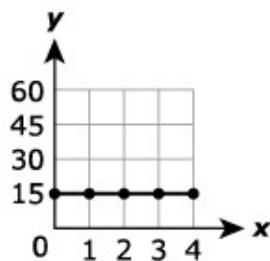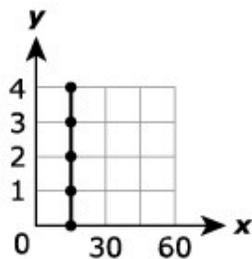B.

C.

D.

20. Ana Maria reads 15 pages of a book each day. If *x* stands for the number of days that Ana Maria reads and *y* stands for the total number of pages that Ana Maria reads, what is the graph of this relationship?
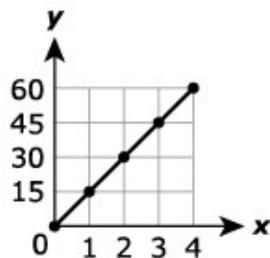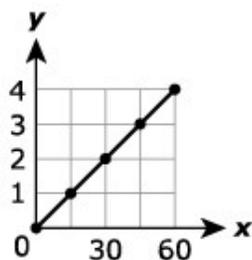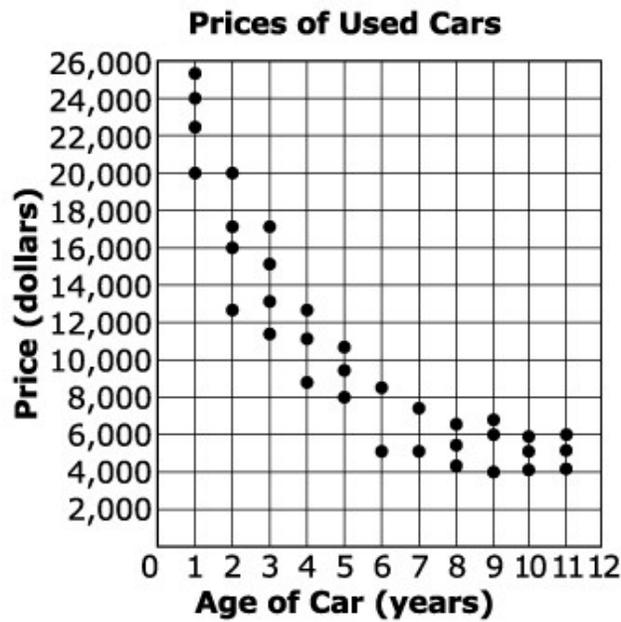
A.

B.

C.

D.

21. The scatter plot shows the prices of some used cars.

Prices of Used Cars

Which statement **best** describes the relationship between the age and the price of the cars?

A. positive, linear association

B. positive, nonlinear association

C. negative, linear association

D. negative, nonlinear association

22. Twice the difference of a number n and seven is equal to four less than the product of five and the number n. What is the value of n?

A. $n = -\dfrac{10}{3}$

B. $n = -1$

C. $n = 1$

D. $n = \dfrac{10}{7}$