SOL Lesson 4 Quiz Name _____
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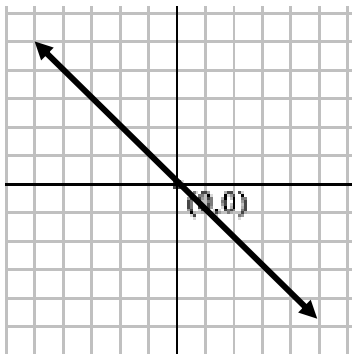
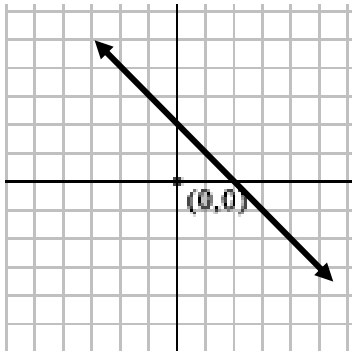
1. In which graph is *y* a direct variation of *x*?

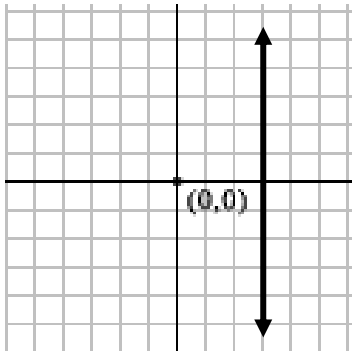
A



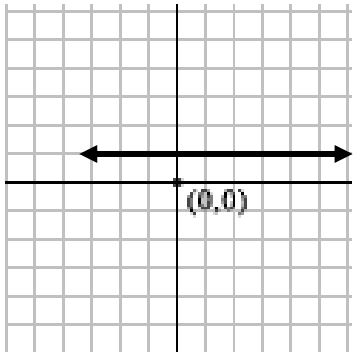
B



C



D

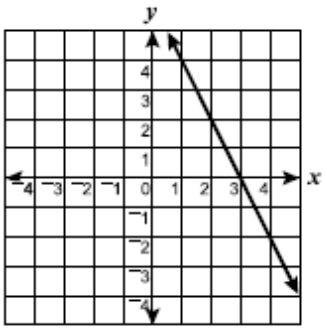


2.

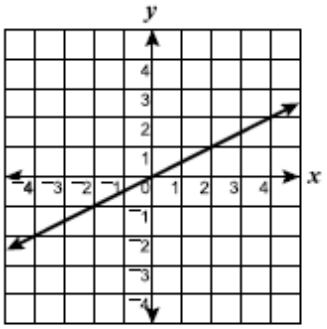
x	2	-4	4
y	1	-2	2

Which graph appears to contain all the points in the table?

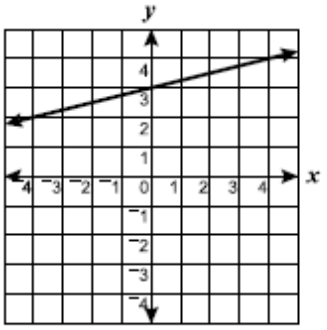
F



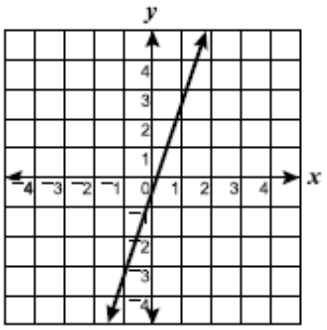
G



H



J



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3. If a varies directly as b and $a = 4$ when $b = 20$, what is the value of a when $b = 8$?

4. The gas pressure in a chamber varies directly with the temperature in the chamber. If the pressure in the chamber is 200 atmospheres (atm) when the chamber is at 40° F, what is the pressure in the chamber when the temperature of the chamber is 60° F?

5. If y varies directly as x and the constant of variation is -3, which equation represents this relationship?

A $y = 3x$

B $y = \frac{x}{-3}$

C $y = \frac{-3}{x}$

D $y = -3x$

6. In the table, y varies directly with x.

x	9	12	15	18
y	6	8	10	12

Which equation best describes the data?

A $xy = \frac{3}{2}$

B $xy = \frac{2}{3}$

C $y = \frac{3}{2}x$

D $y = \frac{2}{3}x$

8. The following chart used to calculate the price, P, in cents per color brochure for a certain bulk number of brochures, n, ordered by a company.

n	100	500	1,000	2,000
p	46	42	37	27

Which equation best represents this relationship?

A $P = \left(\frac{1}{100}\right)n + 45$

B $P = \left(\frac{-1}{10}\right)n + 56$

C $P = \left(\frac{1}{10}\right)n + 36$

D $P = \left(\frac{-1}{100}\right)n + 47$

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9. The number of water bottles used during a team's football practice varies directly with the temperature. If a team uses 50 bottles when the temperature is 60˚, what is the temperature if they use 80 bottles?

F 96°
G 92°
H 84°
J 80°

10. Which of these equations is a direct variation?

A $y = -2x - 1$

B $y = -2x + 1$

C $y = -2x$

D $y = -2$

11. If m varies directly as p, and $m = 4$ when $p = 9$. what is the constant of variation?

A $\frac{4}{9}$

B $\frac{9}{4}$

C 13

D 36

12. **The chart shows how the wholesale price of an item, p, depends on the cost of the materials needed to produce the item, m. Which equation represents this linear relationship?**

m	\$0.50	\$1.00	\$1.50	\$2.00
p	\$5.00	\$6.00	\$7.00	\$8.00

A $p = 4m + 3$
B $p = 3m + 3.5$
C $p = 2m + 4$
D $p = m + 4.5$

13. In which table are all the points represented by the equation $y = \frac{-x}{4} + 3$

A

x	0	2	4	6
y	3	2	1	$\frac{1}{2}$

B

x	0	4	6	8
y	3	2	1	0

C

x	0	4	6	8
y	3	2	$\frac{3}{2}$	1

D

x	0	2	6	8
y	3	2	$\frac{3}{2}$	1

14. In which table of ordered pairs does n vary directly as m?

A

m	n
-3	-1
-1	-3
1	3

B

m	n
-3	-2.0
-1	-6.0
1	6.0

C

m	n
-3	9
-1	3
1	-3

D

m	n
-3	-3
-1	-4
1	4

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x	-3	5	13
y	2	4	6

15. Which equation is satisfied by all the points in the table?

A $x-7y=21$
B $7y-x=21$
C $4y-x=11$
D $x-4y=11$

x	y
0	5
3	2
6	-1

16. Which equation *most* likely describes the relation indicated by the table?

A $y=-x+5$
B $y=x+5$
C $y=-x-7$
D $y=x-1$

17. In kickboxing, a study was conducted to measure the force (*F*) needed to break a board relative to the length of the board (*L*) . It takes 10 lbs of force to break a board 2 feet long. It takes 5 lbs to break a board 4 feet long. Which statement is true about this relationship?

A) The force varies inversely with the length of the board because $F = 5L$.

B) The force varies inversely with length of the board because $FL = 20$.

C) The force varies directly with the length of the board because $F = 5L$.

D) The force varies directly with the length of the board because $FL = 20$.

18. Old Faithful is a geyser in Yellowstone National Part. The table below shows the duration of the eruption and the time until the next eruption of Old Faithful for a selected day.

Duration (minutes)	**3.9**	**4**	**4.1**	**3.5**	**2.3**	**1.7**	**4.7**
Time until next Eruption (minutes)	**74**	**68**	**76**	**80**	**58**	**55**	**93**

Assuming a linear relationship between the duration and time until the next eruption, predict the time until the next eruption when the duration is 5.0 minutes.