

Exercises - Direct, Inverse, and Joint Variations

1

Which of the following tables shows a relationship in which y is directly proportional to x ?

A)	<table border="1"><tr><td>x</td><td>-2</td><td>0</td><td>2</td></tr><tr><td>y</td><td>-1</td><td>1</td><td>3</td></tr></table>	x	-2	0	2	y	-1	1	3
x	-2	0	2						
y	-1	1	3						

B)	<table border="1"><tr><td>x</td><td>-2</td><td>0</td><td>2</td></tr><tr><td>y</td><td>5</td><td>0</td><td>-5</td></tr></table>	x	-2	0	2	y	5	0	-5
x	-2	0	2						
y	5	0	-5						

C)	<table border="1"><tr><td>x</td><td>-2</td><td>0</td><td>2</td></tr><tr><td>y</td><td>-3</td><td>1</td><td>5</td></tr></table>	x	-2	0	2	y	-3	1	5
x	-2	0	2						
y	-3	1	5						

D)	<table border="1"><tr><td>x</td><td>-2</td><td>0</td><td>2</td></tr><tr><td>y</td><td>3</td><td>1</td><td>-1</td></tr></table>	x	-2	0	2	y	3	1	-1
x	-2	0	2						
y	3	1	-1						

2

The distance it takes an automobile to stop varies directly as the square of its speed. If the stopping distance of a car traveling at 40 mph is 320 feet, what is the stopping distance of a car traveling at 50mph?

- A) 360 ft
- B) 420 ft
- C) 500 ft
- D) 580 ft

3

If y varies inversely as \sqrt{x} , and $y = 12$ when $x = 16$, what is the value of y when $x = 100$?

- A) 1.2
- B) 3
- C) 4.8
- D) 6.4

Questions 4 and 5 refer to the following information.

$$L = \frac{k}{d^2}$$

The formula above shows the brightness of the light of an object, which varies inversely as the square of the distance. L , measured in lumens, is the brightness of the light and d , measured in meters, is the distance from the object to the light source.

4

At distance 2 meters from a light source, the brightness of an object was measured at 9 lumens. What is the value of k ?

- A) 18
- B) 24
- C) 32
- D) 36

5

The brightness of an object was measured d meters away from a light source. The brightness of the same object was measured $1.5d$ meters from the light source. What is the ratio of brightness of the object when it is close to the light source to when it is farther away from the light source?

- A) $\frac{9}{4}$
- B) $\frac{5}{2}$
- C) $\frac{7}{4}$
- D) $\frac{3}{2}$