

3.6 Direct Variation

A **direct variation** is a relationship that can be written as $y = kx$, where $k \neq 0$.

k is called the **constant of variation**.

Note: The y-intercept is 0.

Direct Variation

$y = 5x$

Not Direct Variation

$y = x + 5$

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Does the equation represent a direct variation? If so, find the constant of variation.

A. $7y = 2x$

$y = \frac{2}{7}x$

yes, $k = \frac{2}{7}$

B. $3y + 4x = 12$

$3y = -4x + 12$

$y = -\frac{4}{3}x + 4$

no

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Does the equation represent a direct variation? If so, find the constant of variation.

C. $4x + 5y = 0$

$5y = -4x$

$y = -\frac{4}{5}x$

yes, $k = -\frac{4}{5}$

D. $-x + y = 4$

$y = x + 4$

no

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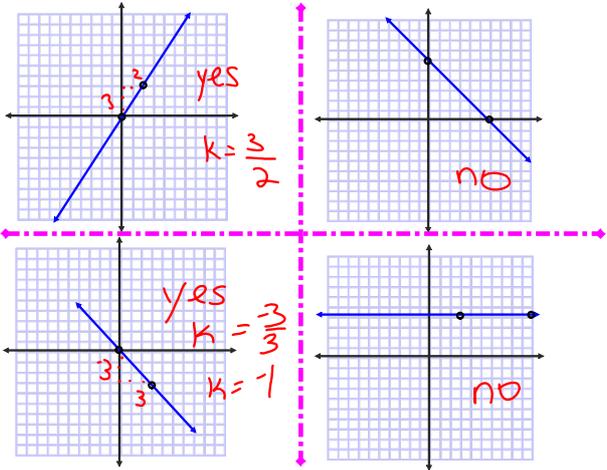
Take note **Concept Summary** **Graphs of Direct Variations**

The graph of a direct variation equation $y = kx$ is a line with the following properties.

- The line passes through $(0, 0)$.
- The slope of the line is k .

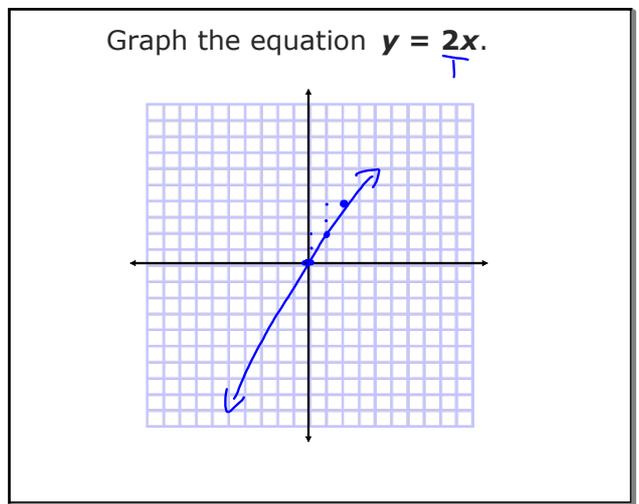
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Determine whether the functions below represent a direct variation. If so, state the constant of variation.

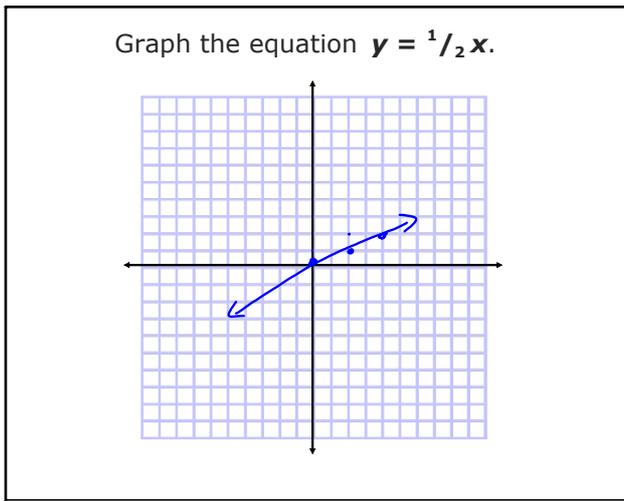


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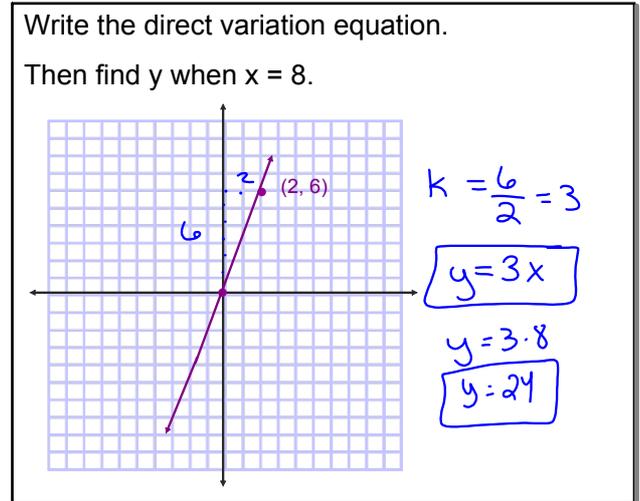
Graph the equation $y = 2x$.



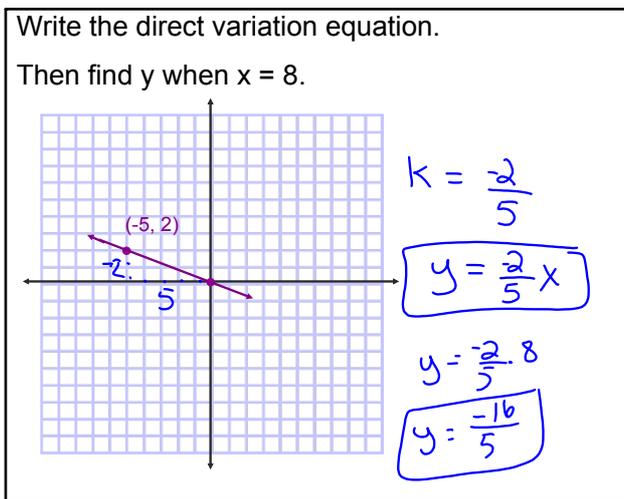
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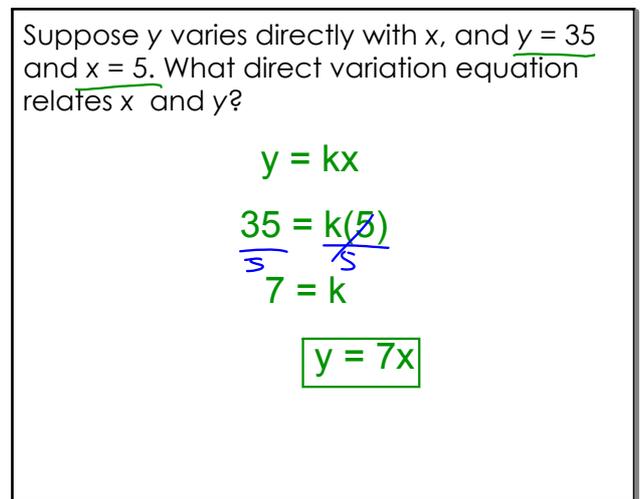
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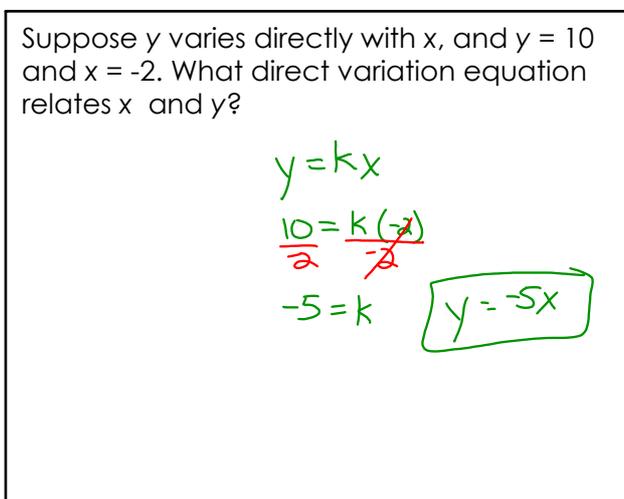
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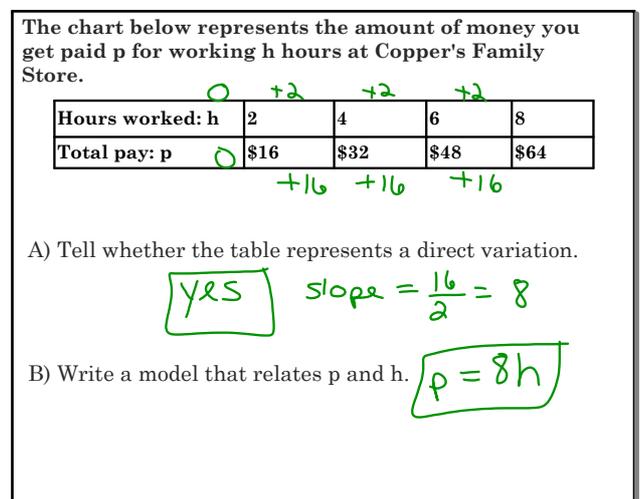
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Classwork: p.194 #2 - 36 even
#12 - 22 on graph paper

Final Five

The price you pay varies directly with the number of pencils you buy. Suppose you buy 3 pencils for \$0.51. How much does each pencil cost? Write a direct variation equation.

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