



Word Problems

1) The distance a spring will stretch **varies directly** as the force to the spring. A **force of 12 pounds** is needed to stretch a spring **9 inches**. What force is required to stretch the spring 15 inches?

"y varies directly as x"

$$\begin{array}{ccc} \downarrow & & \downarrow \\ D & \rightarrow y = kx \leftarrow & F \end{array}$$

$$\frac{D}{F} = \frac{k \cdot \cancel{F}}{\cancel{F}}$$

$$\frac{D}{F} = k$$

$\{ F = \text{Force is 20 lbs.} \}$

$$\frac{D_1}{F_1} = \frac{D_2}{F_2}$$

$$\frac{9}{12} \neq \frac{15}{F}$$

$$9F = 12 \cdot 15$$

$$\frac{9F}{9} = \frac{180}{9}$$

2) The time it takes to fly from Chicago to New York varies inversely as the speed of the plane. If it takes 3 hours at 600 miles per hour, how long would it take at 400 miles per hour?

9-4 Direct, Joint and Inverse Variation notes 2 - Microsoft Word

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2) The time it takes to fly from Chicago to New York varies inversely as the speed of the plane. If it takes 3 hours at 600 miles per hour, how long would it take at 400 miles per hour?

"time varies inversely as speed"

$T \rightarrow xy = k \leftarrow S$

$T_1 \cdot S_1 = T_2 \cdot S_2$

$3 \cdot 600 = T \cdot 400$

$\frac{1800}{400} = \frac{400T}{400}$

$4.5 = T = \text{Time}$

4 hrs 30 min

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