Direct and Inverse Variation

Name: _____Class: S. 5_____ ( ) Date: _____

1. (a) Set "y varies directly as x". What is the equation connecting x and y?
   Answer: y =

   (b) It is given that $x = 4$ when $y = 8$. Move the blue point on the graph to a suitable position. Then click "Find k".
   k is called the variation constant.
   Write down the steps for finding the value of k.

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   (c) Click "Show movable point". When you move the red point,
   (i) is there any changes in the value of x and y? □ Yes □ No
   (ii) is there any changes in the value of k? □ Yes □ No
   (iii) Find the value of y when $x = 5$.

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   (iv) Find the value of y when $x = 9$.

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2. (a) Set "y varies inversely as x". What is the equation connecting x and y?
   Answer: y =

   (b) It is given that $x = 4$ when $y = 8$. Move the blue point on the graph to a suitable position. Then click "Find k".
   k is called the variation constant.
   Write down the steps for finding the value of k.

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   (c) Click "Show movable point". When you move the red point,
   (i) is there any changes in the value of x and y? □ Yes □ No
   (ii) is there any changes in the value of k? □ Yes □ No
   (iii) Find the value of y when $x = 8$.

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   (iv) Find the value of y when $x = 16$.

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3. Complete the following table.

	directly	inversely
y varies as x	$y = kx$	$y = \frac{k}{x}$
y varies as x^2		
y varies as $\sqrt{x}$		
y varies as x^3		

4. Set "y varies directly as x^2". When $x = 2$, $y = 12$.

   (a) Find the value of the variation constant k.
   Hence, write down an equation connecting x and y.

   (b) Find the value of y when $x = 1$.

5. Set "y varies directly as $\sqrt{x}$". When $x = 9$, $y = 6$.

   (a) Find the value of the variation constant k.
   Hence, write down an equation connecting x and y.

   (b) Find the value of y when $x = 16$.

6. y varies inversely as x^2. When $x = 5$, $y = 8$.

   (a) Write down an equation connecting x and y.

   (b) Find the value of y when $x = 10$.

7. y varies inversely as x^3. When $x = 2$, $y = 6$.

   (a) Write down an equation connecting x and y.

   (b) Find the value of y when $x = 4$.

8. y varies inversely as $\sqrt{x}$. When $x = 9$, $y = 8$.

(a) Express y in terms of x.

(b) Find the value of y when $x = 16$.

(c) Find the value of x when $y = 2$.

9. y varies as x^3. When $x = 16$, $y = 8$.

(a) Express y in terms of x.

(b) Find the value of y when $x = 10$.

(c) Find the value of x when $y = 24$.