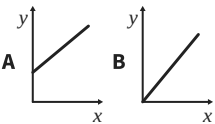
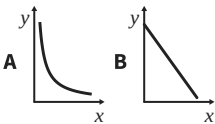
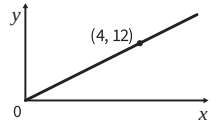
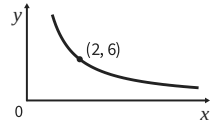
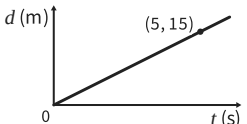
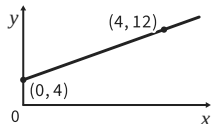
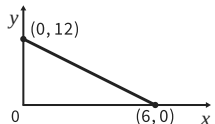
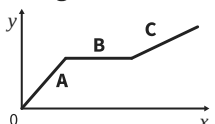


# Proportion Graphs and Rates of Change *ramp up*

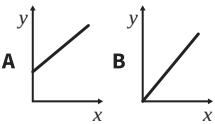
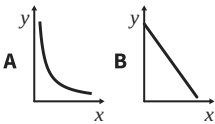
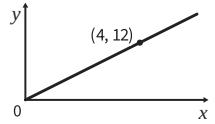
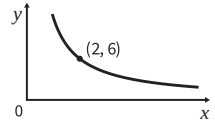
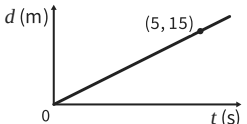
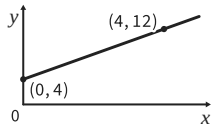
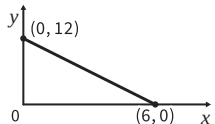
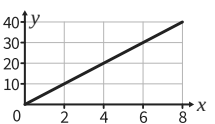
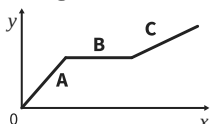
ANSWERS

|                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                   |   |   |     |   |    |    |                                                                                                                                                                                                                                     |                                                                                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|-----|---|----|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>a</b> Which shows direct proportion?</p>  <p style="text-align: center;"><b>B</b></p> <p>direct proportion: a line through 0</p>         | <p><b>b</b> Which shows inverse proportion?</p>  <p style="text-align: center;"><b>A</b></p> <p>the inverse curve, not a falling line</p>                                                                                                                                   | <p><b>c</b> Find <math>y</math> when <math>x = 9</math></p>  <p style="text-align: center;"><b>27</b></p> <p>a direct graph beyond its edge</p> | <p><b>d</b> Find <math>y</math> when <math>x = 8</math></p>  <p style="text-align: center;"><b>1.5</b></p> <p>a point on the inverse curve</p> |   |   |     |   |    |    |                                                                                                                                                                                                                                     |                                                                                                                                                                            |
| <p><b>e</b> Find the rate of change, with units</p>  <p style="text-align: center;"><b>3 m/s</b></p> <p>the gradient as a rate, with units</p> | <p><b>f</b> Find the gradient</p>  <p style="text-align: center;"><b>2</b></p> <p>change over change, not y over x</p>                                                                                                                                                      | <p><b>g</b> Find the gradient</p>  <p style="text-align: center;"><b>-2</b></p> <p>a negative rate of change</p>                                | <p><b>h</b> Find the gradient</p>  <p style="text-align: center;"><b>5</b></p> <p>axes with different scales</p>                               |   |   |     |   |    |    |                                                                                                                                                                                                                                     |                                                                                                                                                                            |
| <p><b>i</b> Find the rate of change in B</p>  <p style="text-align: center;"><b>0</b></p> <p>a flat line: no change</p>                        | <p><b>j</b> Find the rate of change of <math>y</math></p> <table border="1" data-bbox="454 840 646 907"> <tbody> <tr> <td><math>x</math></td> <td>0</td> <td>2</td> <td>4</td> </tr> <tr> <td><math>y</math></td> <td>5</td> <td>11</td> <td>17</td> </tr> </tbody> </table> <p style="text-align: center;"><b>3</b></p> <p>a constant rate from a table</p> | $x$                                                                                                                                                                                                                               | 0                                                                                                                                                                                                                                 | 2 | 4 | $y$ | 5 | 11 | 17 | <p><b>k</b> <math>y</math> is directly proportional to <math>x</math>. Its graph has gradient 4. Find <math>y</math> when <math>x = 3</math></p> <p style="text-align: center;"><b>12</b></p> <p>the gradient is the multiplier</p> | <p><b>l</b> <math>y = 7 - 2x</math>. Find the rate of change of <math>y</math></p> <p style="text-align: center;"><b>-2</b></p> <p>the rate of change from an equation</p> |
| $x$                                                                                                                                                                                                                             | 0                                                                                                                                                                                                                                                                                                                                                            | 2                                                                                                                                                                                                                                 | 4                                                                                                                                                                                                                                 |   |   |     |   |    |    |                                                                                                                                                                                                                                     |                                                                                                                                                                            |
| $y$                                                                                                                                                                                                                             | 5                                                                                                                                                                                                                                                                                                                                                            | 11                                                                                                                                                                                                                                | 17                                                                                                                                                                                                                                |   |   |     |   |    |    |                                                                                                                                                                                                                                     |                                                                                                                                                                            |

The Maths Habit

# Proportion Graphs and Rates of Change *ramp up*

ANSWERS

|                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                     |   |   |     |   |    |    |                                                                                                                                                                                                                                     |                                                                                                                                                                            |
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| $x$                                                                                                                                                                                                                               | 0                                                                                                                                                                                                                                                                                                                                                              | 2                                                                                                                                                                                                                                   | 4                                                                                                                                                                                                                                   |   |   |     |   |    |    |                                                                                                                                                                                                                                     |                                                                                                                                                                            |
| $y$                                                                                                                                                                                                                               | 5                                                                                                                                                                                                                                                                                                                                                              | 11                                                                                                                                                                                                                                  | 17                                                                                                                                                                                                                                  |   |   |     |   |    |    |                                                                                                                                                                                                                                     |                                                                                                                                                                            |

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