Starter
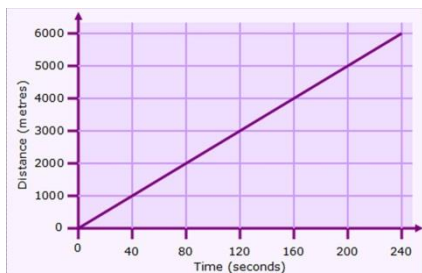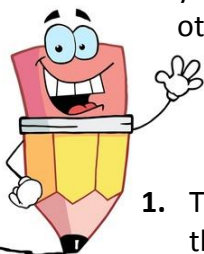
1. Does the equation $y = 5x + 1$ show a proportional relationship between x and y? Explain.

2. Does the equation $y = 2x$ show a proportional relationship between x and y? Explain.

3. The graph shows the relationship between the distance a runner runs and the time he runs. Is the relationship proportional? What is true about ratios for proportional relationships that is not true about ratios for other relationships?

4. Does the equation $y = 6x + 1$ show a proportional relationship between x and y? Explain. How can you tell whether an equation of the form $y = mx + b$ shows a proportional relationship or some other relationship?

2.3   Practice

1. The variable y is in a proportional relationship with x. The number of hearts represents an x value; the number of stars represents the corresponding y value. Identify the constant of proportionality.

2. Does the table show a proportional relationship? If so, what is the constant of proportionality of y to x?

x	4	5	6	7
y	36	45	54	63

3. A school's debate team has had the same record for the last 3 years. The team has won 21 debates with 7 losses. Find the constant of proportionality of wins to losses.

4. Suppose the relationship between x and y is proportional. When x is 18, y is 144. Find the constant of proportionality of y to x. Use the constant of proportionality to find x when y is 324.

5. Suppose the relationship between x and y is proportional. When x is 8, y is 60. Find the constant of proportionality of y to x. Use the constant of proportionality to find x when y is 142.5.

6. The distance a car travels in miles has a proportional relationship with the amount of gas in gallons used for the drive. The table shows the distance the car has traveled and the amount of gas used. Find the constant of proportionality. How much gas is needed to travel 231 miles?

Gallons of gas	2	4	5	7
Miles	42	84	105	147