

### 7-3 TECHNOLOGY ACTIVITIES CONSTANT OF PROPORTIONALITY



Go to [student.desmos.com](https://student.desmos.com), get the class password from your teacher, and do the Desmos activity called Constant of Proportionality.

1. In the table below, what appears to be the constant of proportionality?

<b>x</b>	0	3	6	10	2.5	150
<b>y</b>	0	12	24	40	10	600

2. Given the following ordered pairs, what appears to be the constant of proportionality?

(0, 0)      (2, 5)      (10, 25)      (1, 2.5)

3. In as much detail as you can, describe the graph of a line with a constant of proportionality of  $\frac{1}{2}$ .

4. Write the numbers that might come next in the table below, determine if there is a constant of proportionality, and explain your reasoning.

<b>x</b>	1	2	3	4	5	6	
<b>y</b>	1	4	9	16	25	36	

5. Assume that at both stores in the tables below you can buy any number of Healthy Crunch bars you like at these prices: 2 for \$2.50 at Barter Jack's and 4 for \$4.20 at Quigley's. Fill in the tables to collect data on this product from these two stores.

For each table, write the constant of proportionality ( $k$ ), and describe whether this number is the same or different than the unit price (price per one bar).

Healthy Crunch: Barter Jack's	
quantity	price
Value for $k$ :	

Healthy Crunch: Quigley's	
quantity	price
Value for $k$ :	

### 7-3 TECHNOLOGY ACTIVITIES

#### TURTLE TIME TRIALS



Go to [student.desmos.com](https://student.desmos.com), get the class password from your teacher, and do the Desmos activity called Turtle Time Trials. Below is information on different turtles.

- If Turtle A is running faster than Turtle B in a video, what must be true when you compare...
  - Their distance values in the table?
  - The graphs of their lines?
  - The coefficient of  $x$  in their equations? (e.g., for  $y = 3x + 4$ , 3 is the coefficient of  $x$ .)
- If Turtle C has a head start on Turtle D in a video, what must be true when you compare...
  - Their distance values in the table?
  - The graphs of their lines?
  - The constant values in their equations? (e.g., for  $y = 3x + 4$ , 4 is the constant value.)
- You watched a video, connected it to some equations, and observed which turtles went faster/slower, comparing the rates of speed to the equations.

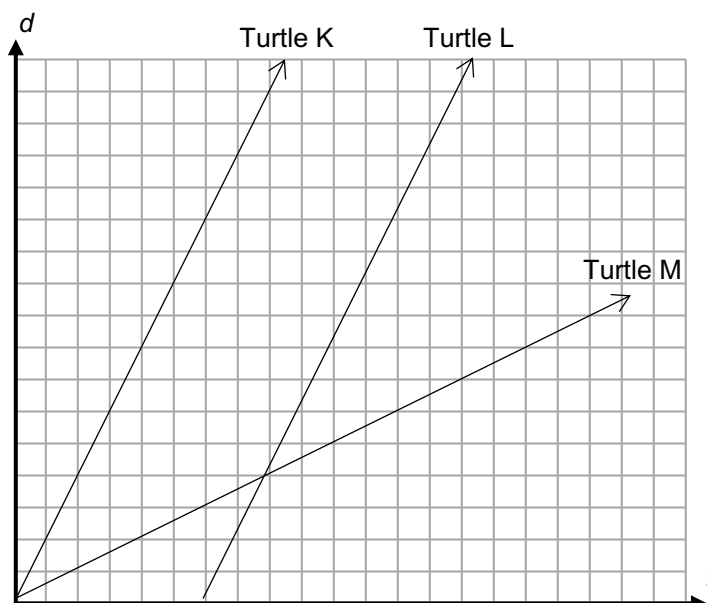
Study these equations where  $t$  represents time in seconds and  $d$  represents distance in feet.

Turtle E	Turtle F	Turtle G	Turtle H
$d = 2t + 4$	$d = t + 1$	$d = 3t$	$d = 2t$

- Which turtle(s) is/are the fastest? Slowest?
- Which turtle(s) has/have the greatest head start?

- Study these graphs where  $t$  represents time in seconds and  $d$  represents distance in feet.

- Which turtle(s) is/are the fastest? Slowest?
- Which turtle(s) has/have the largest head start?



### 7-3 TECHNOLOGY ACTIVITIES

### THE RUNNING GAME



Go to [student.desmos.com](https://student.desmos.com), get the class password from your teacher, and do the Desmos activity called The Running Game.

1. If Sam can run at a pace of 7 minutes 21 seconds (7:21) per mile on average, how long would it take him to run 4 miles at that pace?

2. Kim ran 3 miles in 30:04. What was her average pace per mile?

3. Amet ran 5 miles in 39 minutes. He ran each mile at a different pace, but each mile was within 1 minute of the mile before it and the mile after it.

a. Write reasonable times for each mile in the table.

Mile #	1	2	3	4	5
Time					

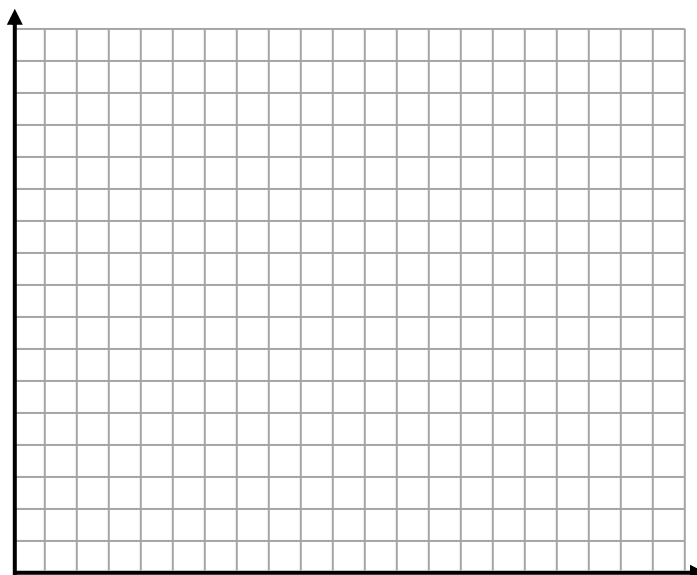
b. Make a new table of the data in part a above to record TOTAL time at each mile.

Distance in miles	1	2	3	4	
Time in minutes					39

c. Graph the data in part b above. Label and scale your graph appropriately.

d. Write a reasonable ordered pair to fit this graph:  
(6, \_\_\_\_\_)

Explain what this ordered pair means in the context of the problem.



4. Find a value that approximates this equation:

Time in minutes = \_\_\_\_\_ • distance in miles

Let  $t$  = time and  $d$  = distance, and rewrite the equation above: \_\_\_\_\_