

1.) $w = \frac{l}{8}$
 $h = 3w$

An engineer determined that a bridge he is designing has a maximum stability when its length, l , width, w , and height, h , are defined by the equations above. If he wants to build a bridge with a height of 9 meters, what should be the length of the bridge, in meters?

- A) 48
 B) 24
 C) 12
 D) 6

$a = 3w$
 $w = 3$
 $3 = \frac{l}{8}$
 $l = 24m$

2.) $2x^2 - x = 15$

Which of the following is a correct value for x in the equation above?

- A) 3
 B) 2
 C) -2
 D) -4

3.) The formula $d = rt$ is used to calculate the distance an object travels over a period of time, t , at a constant rate, r . Based on this formula, what is the rate, r , in terms of d and t ?

A) $r = \frac{d}{t}$ $\frac{d}{t} = r$

- B) $r = dt$
 C) $r = \frac{t}{d}$
 D) $r = d - t$

4.) The sum of four consecutive integers is 190. What is the third integer?

- A) 45
 B) 46
 C) 47
 D) 48

$x + x + 1 + x + 2 + x + 3 = 190$
 $4x + 6 = 190$
 $4x = 184$
 $x = 46 + 2$
 $x = 48$

5.) What value of y satisfies the equation below?

$$\frac{9}{4}(y-8) = \frac{27}{2}$$

$$\frac{9y}{4} - 18 = \frac{27}{2} + 18 \cdot 2$$

$$\frac{9y}{4} = \frac{27}{2} + \frac{36}{2}$$

$$\frac{9y}{4} = \frac{63}{2}$$

$$9y = \frac{63}{2} \cdot 4$$

$$9y = 126$$

$$y = 14$$

6.)

$$\frac{3(k-1)+5}{2} = \frac{17-(8+k)}{4}$$

In the equation above, what is the value of k ?

A) $\frac{9}{13}$

B) $\frac{5}{7}$

C) $\frac{8}{7}$

D) $\frac{8}{5}$

$$\frac{3k-3+5}{2} = \frac{17-8-k}{4}$$

$$\frac{3k+2}{2} = \frac{9-k}{4}$$

$$4(3k+2) = 2(9-k)$$

$$12k+8 = 18-2k$$

$$14k = 10$$

$$k = 10/14$$

$$6k+4 = 9-k$$

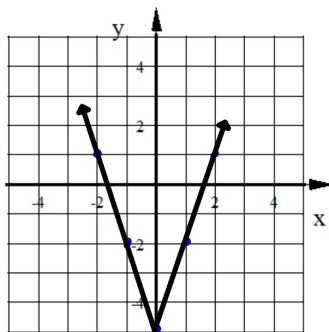
$$7k = 5$$

$$k = 5/7$$

1. $y = 3|x| - 5$

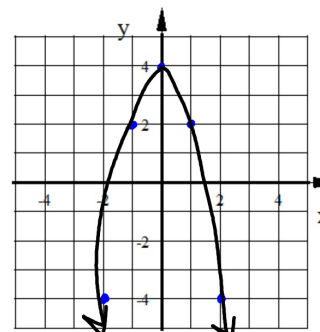
CW Answers

X	Y
-2	1
-1	-2
0	-5
1	-2
2	1



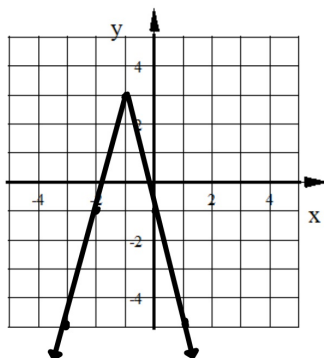
2. $y = -2x^2 + 4$

X	Y
-2	-4
-1	2
0	4
1	2
2	-4



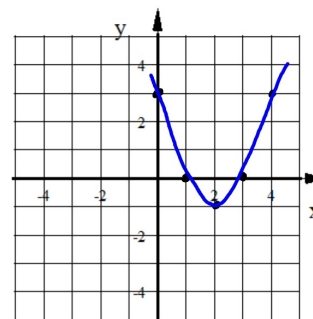
3. $y = -4|x + 1| + 3$

X	Y
-3	-5
-2	-1
-1	3
0	-1
1	-5



4. $y = (x - 2)^2 - 1$

X	Y
0	3
1	0
2	-1
3	0
4	3



The graph of an equation containing $|x|$ or $|x - |$

always turns out to be a

The graph of an equation containing x^2 or $(x -)^2$

always turns out to be a

5-1

Relating Graphs to Events

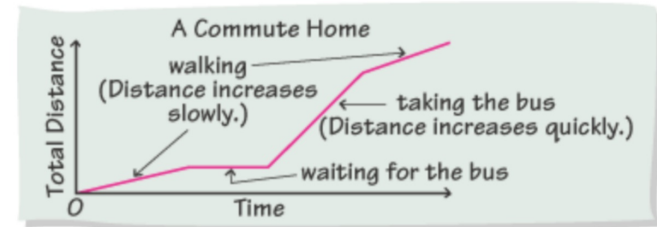
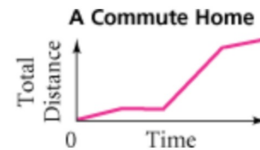
OBJECTIVE

1

Interpreting, Sketching, and Analyzing Graphs

Example 1: Interpreting Graphs

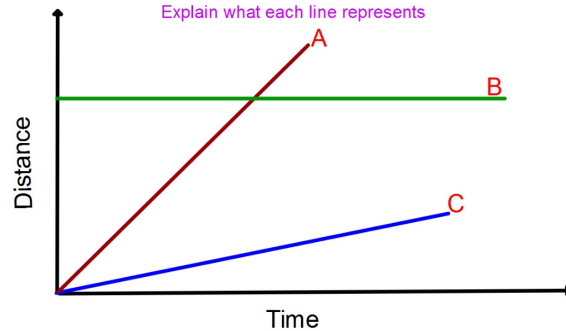
Commute: One student walks and takes a bus to get from school to home each day. The graph at the right shows the student's commute by relating the time the student spends commuting and the distance he travels. Describe what the graph shows by labeling each part.



Example 2: Analyzing a Graph

The graph below shows the distance a person travels as a function of the amount of time they've been traveling.

Explain what each line represents



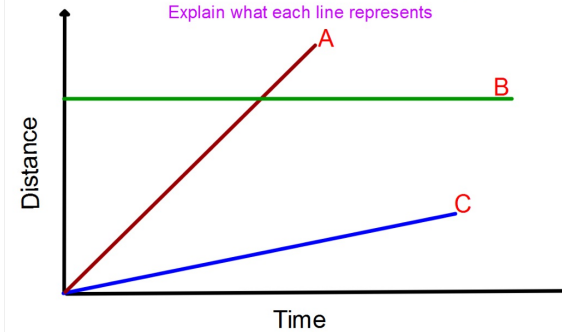
Section A

Section B

Section C

The graph below shows the distance a person travels as a function of the amount of time they've been traveling.

Explain what each line represents



Section A

Running

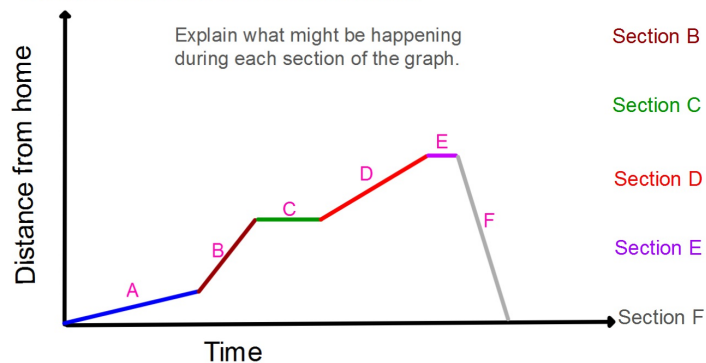
Section B

Rest

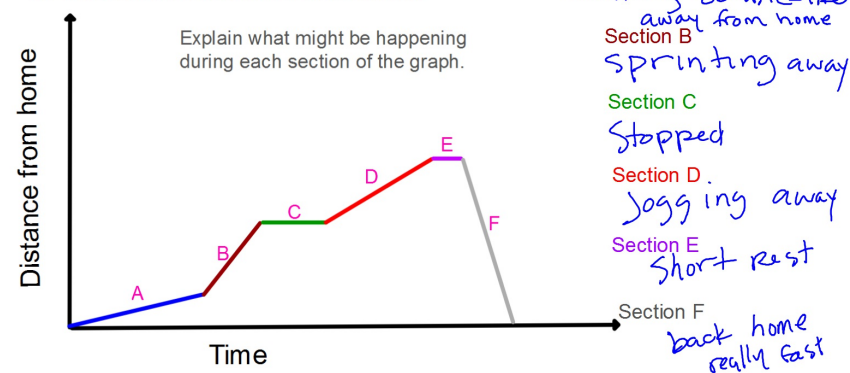
Section C

walking

Iman left home to go for a walk. The graph below shows her distance from home as a function of time.



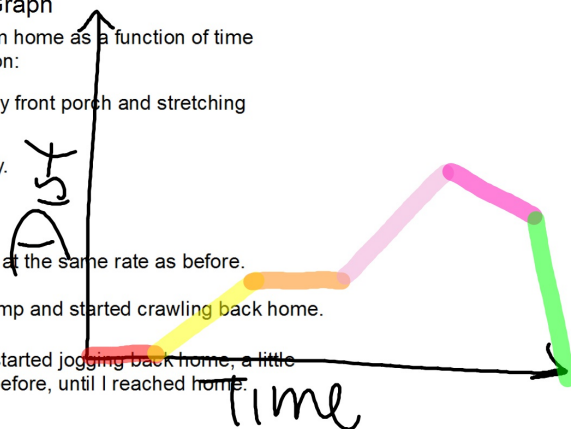
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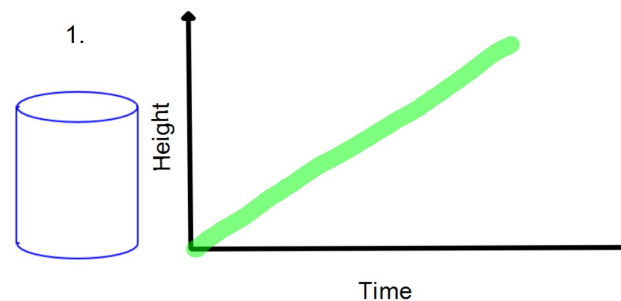
Example 3: Sketching a Graph

Draw a graph of distance from home as a function of time to model the following situation:

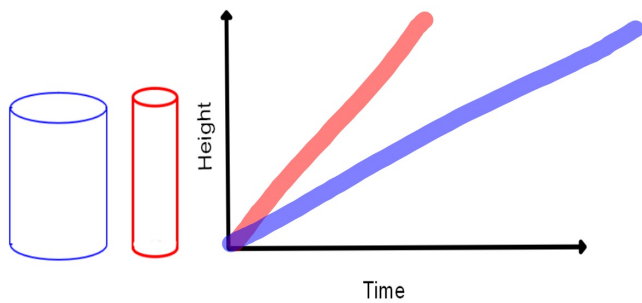
1. I started out by sitting on my front porch and stretching for a little bit.
2. I then started jogging slowly.
3. I stopped to tie my shoe.
4. I then started jogging again at the same rate as before.
5. After a while I got a bad cramp and started crawling back home.
6. The cramp went away so I started jogging back home, a little quicker than I was jogging before, until I reached home.



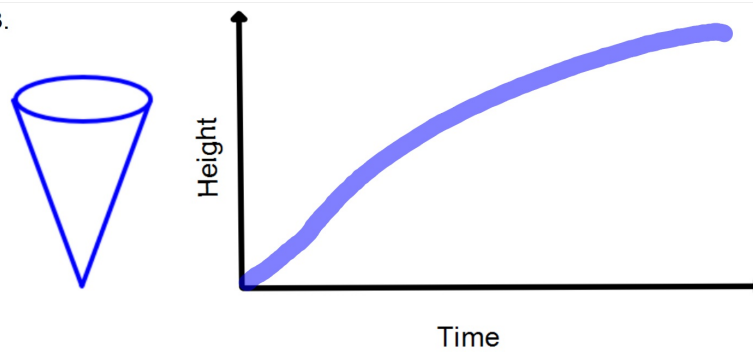
You fill up a container with a steady stream of water from your faucet. Sketch the Height of the water in the container as a function of time for each shape.



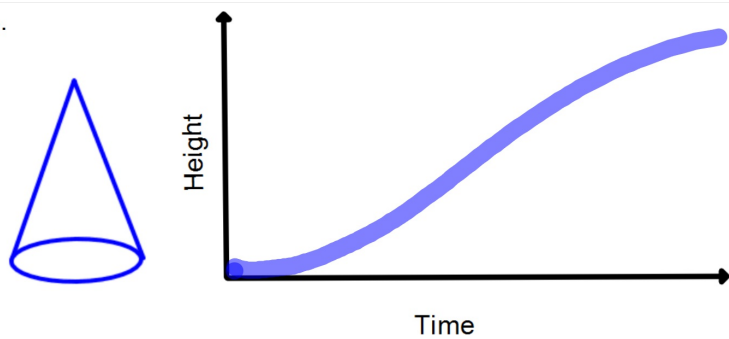
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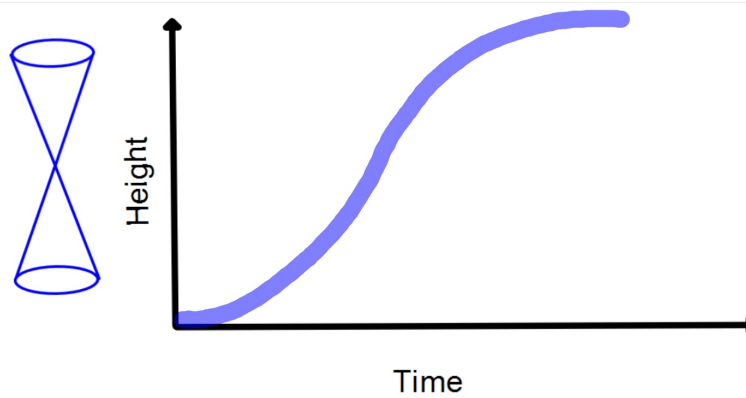
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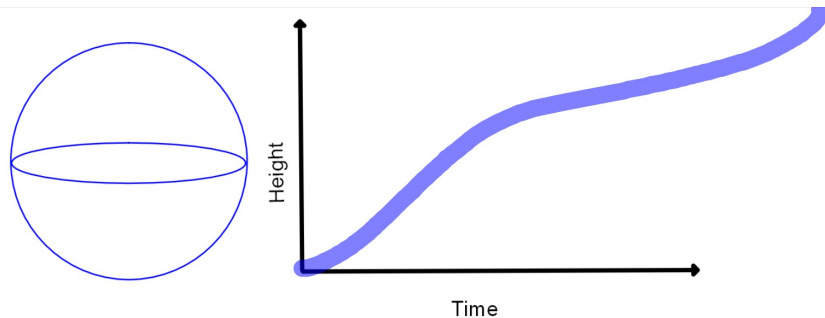
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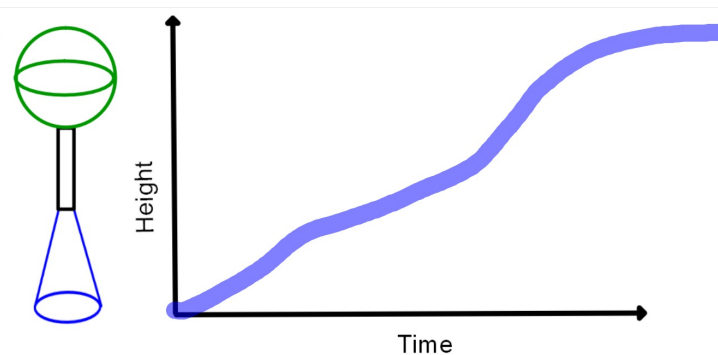
5.



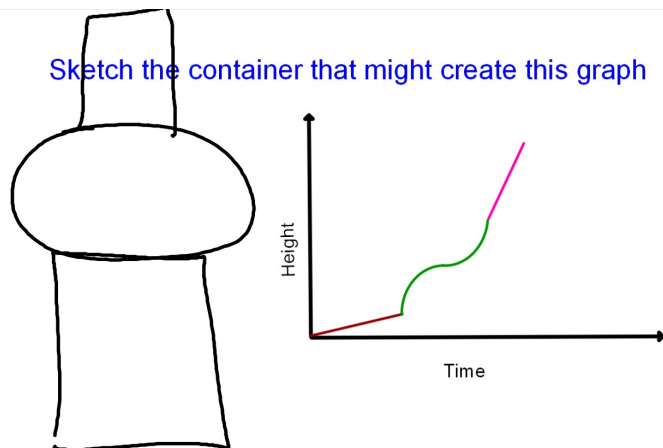
6.



7.



Sketch the container that might create this graph



22. **In-Line Skating** a. Describe what the graph at the right shows about a student's in-line skating experience.
b. Label each section.

