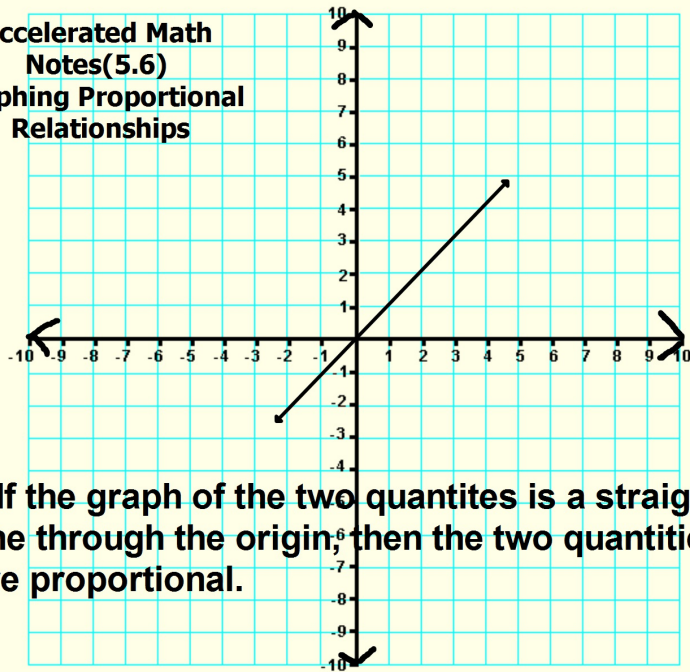## Panel 1 (top left)

Accelerated Math Notes(5.6) Graphing Proportional Relationships

If the graph of the two quantites is a straight line through the origin, then the two quantities are proportional.

Panel 2 (top right)

(1, r)

(0,0)

Constant of proportionality   k = Unit rate r

In a proportional relationship, the point (1, r) tells you the constant of proportionality.

So, what is the equation of this line?

$$y = rx$$

Panel 3 (bottom left)

A hot air balloon is at 140 feet and descends 20 feet per minute.
A) Determine whether the height of the hot air balloon is proportional to the number of minutes.

No it is not proportional.
The graph is a Straight line but does not go through the origin.

Hot Air Balloon

Height

140
100
60
20

minutes

Panel 4 (bottom right)

The tree sloth moves at a speed of 6 feet per minute. Determine whether the number of feet the sloth moves is proportional to the number of minutes it moves by graphing on the coordinate plane. Explain your reasoning.

Yes. There is a constant rate of 6 feet per minute.

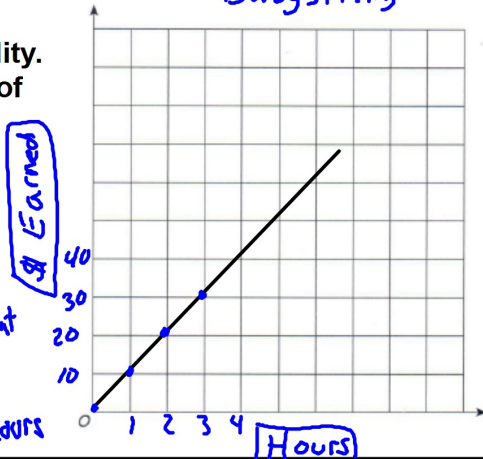The graph is a Straight line that goes through the origin.

Tree Sloth

Distance (feet)

30
24
18
12
6

minutes

James earns $10 an hour babysitting.

A) Determine whether the amount of money James earns babysitting is proportional to the number of hours he babysits by graphing on the coordinate plane. Explain your reasoning.

B) Find and interpret the constant of proportionality.

C) Explain the meaning of the point (3,30)

Babysitting

A) Is proportional
Straight line through the origin
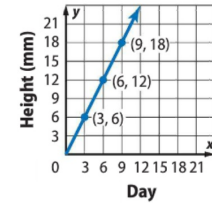
B) Look at point (1,10) ⑩ is constant of proportionality

C) James earns $30 in 3 hours

$ Earned

40
30
20
10

1 2 3 4

Hours

Keith plants a seed. Every three days after the seed sprouts he measures the height of the plant. The graph shows his results.

A) Find and interpret the constant of proportionality.

$\dfrac{\text{Height}}{\text{Days}} \quad \dfrac{6}{3} = \dfrac{12}{6} = \dfrac{18}{9} = \dfrac{2}{1} = ②$

$$y = 2x$$

B) Explain what the point (6,12) means.

In 6 days the plant grows 12 mm.

Height (mm): 21 18 15 12 9 6 3
(9, 18)
(6, 12)
(3, 6)
Day: 0 3 6 9 12 15 18 21