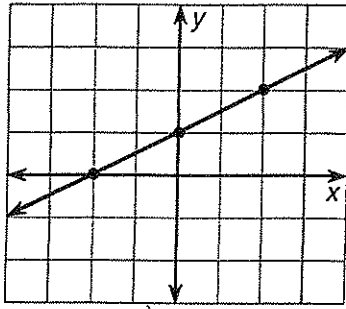


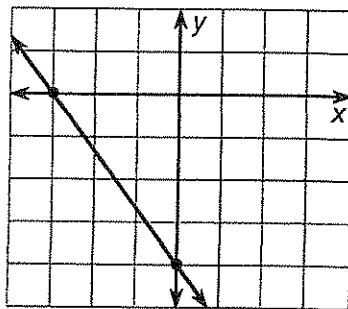
# Slopes and Intercepts

Key

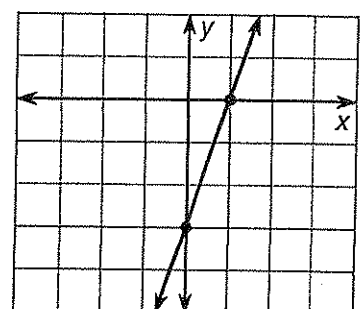
Find the slope and intercepts for each line.



- slope  $\frac{1}{2}$
- x-intercept  $\underline{-2}$
- y-intercept  $\underline{1}$

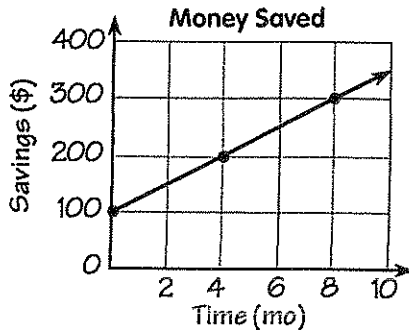


- slope  $\underline{-\frac{4}{3}}$
- x-intercept  $\underline{-3}$
- y-intercept  $\underline{-4}$

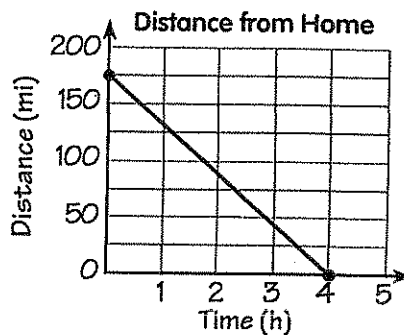


- slope  $\underline{\frac{3}{1} = 3}$
- x-intercept  $\underline{1}$
- y-intercept  $\underline{-3}$

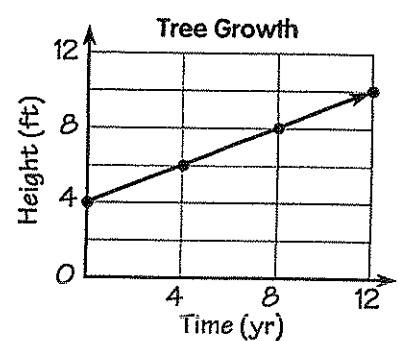
Answer the questions for each graph. Be sure to include a unit of measurement with each answer.



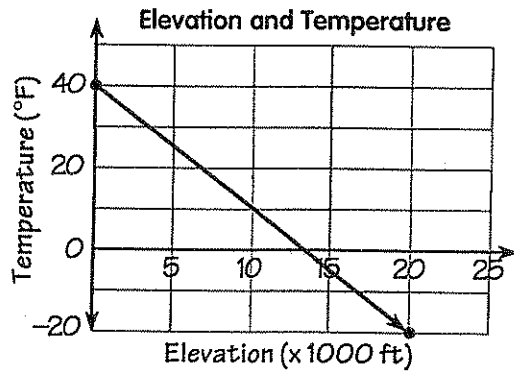
- How much money had been saved at time 0?  $\$100$
- What was the rate of saving (\$/mo)?  $\frac{\$100}{4 \text{ mo}} = \$25/\text{mo}$



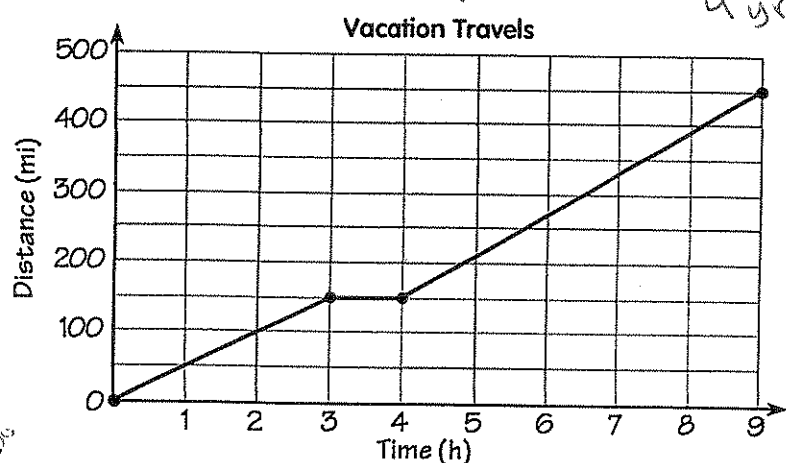
- What was the distance from home at time 0?  $175 \text{ mi}$
- What was the rate of speed (mph)?  $\frac{-175 \text{ mi}}{4 \text{ hr}} = -43.75 \text{ mph}$



- What was the height of the tree at time 0?  $4 \text{ ft}$
- What was the rate of growth (ft/yr)?  $\frac{2 \text{ ft}}{4 \text{ yr}} = \frac{1 \text{ ft}}{2 \text{ yr}}$



- What was the temperature at sea level? At 20,000 ft?  $40^\circ$ ,  $-20^\circ$
- At what rate did the temperature change ( $^\circ\text{F}/1000 \text{ ft}$ )?  $\frac{-30^\circ}{1000 \text{ ft}}$
- At about what elevation was the temperature  $0^\circ\text{F}$ ?  $13,000$
- What would the temperature be outside a jet flying at 40,000 ft?  $-80^\circ\text{F}$



- What was the rate of speed from 0 to 3 h?  $\frac{150}{3} = 50 \text{ mi/hr}$
- What was the rate of speed from 3 to 4 h?  $0 \text{ mph}$
- What was the rate of speed from 4 to 9 h?  $\frac{300}{5} = 60 \text{ mi/hr}$
- What was the overall average rate of speed (total distance divided by total time)?  $\frac{450}{9} = 50 \text{ mi/hr}$

REFER to "Slopes and Intercepts" Worksheets

Key

Graph for #10 and 11:

Would (12, 400) be a solution? How do you know?

*Yes, it follows the pattern and would be on the line.*

*Also, the equation is  $s = 100 + \frac{100}{4}t$  ( $s =$  amount in savings,  $t =$  time in months)*

*which simplifies to  $s = 100 + 25t$ . If I substitute  $t = 12$  and  $s = 400$ , then...*

$$400 = 100 + 25(12)$$

$$400 = 100 + 300$$

$$400 = 400 \quad \text{Yes, it's a solution!}$$

Would (16, 600) be a solution? How do you know?

*No, it does not follow the pattern and would NOT be on the line.*

*Also,  $s = 100 + 25t$ . If I substitute  $t = 16$  and  $s = 600$ , then...*

$$600 = 100 + 25(16)$$

$$600 = 100 + 400$$

$$600 = 500 \quad \text{No, it is not a solution!}$$

Would (-4, 0) be a solution? How do you know?

*Yes, but only sort of...*

*It follows the pattern...*

*Also,  $s = 100 + 25t$ . If I substitute  $t = -4$  and  $s = 0$ , then...*

$$0 = 100 + 25(-4)$$

$$0 = 100 + -100$$

$$0 = 0 \quad \text{Yes, it's a solution!}$$

*BUT,  $t = -4$  ... -4 months? Does that make sense? Not really. So while it's a solution to the equation, it does not work for the context of the equation.*

**SO, yes, a solution, but not in context.**

Identify as "a solution for the function in context", "a solution for the function, but not in context", or "not a solution". EXPLAIN!!!! (aka, show work and/or write a sentence)

Graph for #12 and 13:

(3, 50)? Not a solution. It's not on the line.

(5, -43.75)?  
t d

$$d = 175 - \frac{175}{4}t$$
$$-43.75 = 175 - \frac{175}{4}(5)$$
$$-43.75 = -43.75 \checkmark$$

A solution but not in context; negative miles doesn't make sense, it's already home.

Graph for #14 and 15:

(20, 16)?  
t h

Not a solution. It's not on the line, if extended

$$\text{Also, } h = 4 + \frac{2}{4}t \Rightarrow h = 4 + \frac{1}{2}t$$

$$16 = 4 + \frac{1}{2}(20)$$

$$16 \neq 14 \text{ Not equal.}$$

(-4, 2)?  
t h

$$2 = 4 + \frac{1}{2}(-4)$$

$$2 = 2 \checkmark$$

A solution, but not in context; negative time doesn't make sense.

(10, 9)?  
t h

A solution for the function in context,

It's on the line.

$$\text{Also } 9 = 4 + \frac{1}{2}(10)$$

$$9 = 9 \checkmark$$

3. The function below shows the cost to attend the fair if you ride  $r$  rides.

$$f(r) = 5 + 1.75r$$

a. What is the y-intercept, and what does it mean?

5, entry fee

b. What is the slope, and what does it mean?

1.75, cost per ride

c. If Al spent \$19.00 at the fair, how many rides did Al ride?

$$\begin{array}{r} 19 = 5 + 1.75r \\ -5 \quad -5 \\ \hline \end{array}$$

$$\begin{array}{r} 14 = 1.75r \\ 1.75 \quad 1.75 \\ \hline \end{array}$$

$$r = 8 \text{ rides}$$

4. The function below shows the cost for Mrs. Franklin to go to a buffet with  $c$  of her grandchildren.

$$f(c) = 6.85 + 2.95c$$

a. What is the y-intercept, and what does it mean?

6.85, cost for Mrs. Franklin's meal

b. What is the slope, and what does it mean?

2.95, cost for each grandchild's meal

c. If Mrs. Franklin paid 18.65 for the buffet, how many of her grandchildren did she take to the buffet?

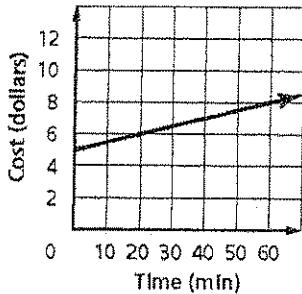
$$\begin{array}{r} 18.65 = 6.85 + 2.95c \\ -6.85 \quad -6.85 \\ \hline \end{array}$$

$$\begin{array}{r} 11.80 = 2.95c \\ 2.95 \quad 2.95 \\ \hline \end{array}$$

$$c = 4 \text{ grandchildren}$$

8. Tara pays a base rate for her long distance phone service plus a per-minute charge. The graph below shows what she would pay for her long distance phone service for the first 60 minutes. What does the y-intercept of this graph represent?

Long Distance Service



sign up cost

9. Rich is a <sup>member</sup> member of a gym. He pays a monthly fee plus a per-visit fee. The equation below represents the monthly amount Rich pays for his membership to the gym per month for  $x$  visits.

$$y = 3x + 10$$

What does the y-intercept of the graph of this equation represent?

\$10 monthly fee

10. Nan works as a commissioned sale rep. She makes a weekly base salary plus a commission for each sale she makes. The table below shows how much Nan can make. What is Nan's weekly base salary?

Nan's Weekly Salary					
Sales Made	1	2	3	4	5
Salary	\$250	\$300	\$350	\$400	\$450

0  
200

+50

+50

+50

\$200

3) Ralph wants to rent a car for 7 days and the rental company charges a \$50 plus a daily fee of \$23 to rent an economy car.

a) Write the equation of this scenario with  $c$  being the rental cost and  $d$  being the number of days the car is being rented.

b) Using your equation fill in the table with the costs for the first 7 days.

Days	Cost
0	50
1	73
2	96
3	119
4	142
5	165
6	188

) +23  
) +23

$$C = 50 + 23d$$

c) Is the domain and range discrete or continuous? Why?

d) What is the domain? Range?

e) Interpret the meaning of the domain.

f) Interpret the meaning of the range.

Discrete, they charge you 1 day whether it was a couple of hours or not

$$D = \{0, 1, 2, 3, 4, 5, 6\} \quad R = \{50, 73, 96, 119, 142, 165, 188\}$$

# of days

possible costs