

3-1 Practice

Graphing Linear Functions

Determine whether each equation is a linear equation. Write *yes* or *no*. If yes, write the equation in standard form and determine the *x*- and *y*-intercepts.

1. $4xy + 2y = 9$

No

2. $8x - 3y = 6 - 4x$

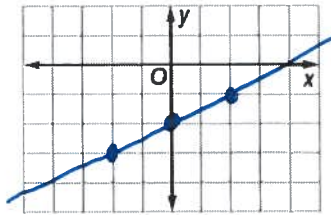
Yes
 $x: \frac{1}{2}$ $y: -2$

3. $7x + y + 3 = y$

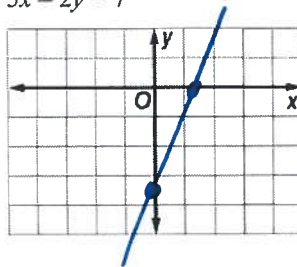
Yes
 $x: -\frac{3}{7}$ $y: \text{none}$

Graph each equation.

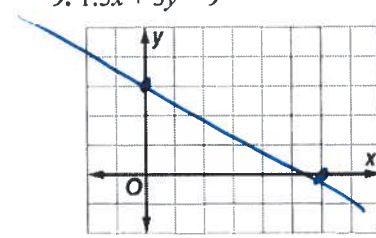
7. $\frac{1}{2}x - y = 2$



8. $5x - 2y = 7$



9. $1.5x + 3y = 9$

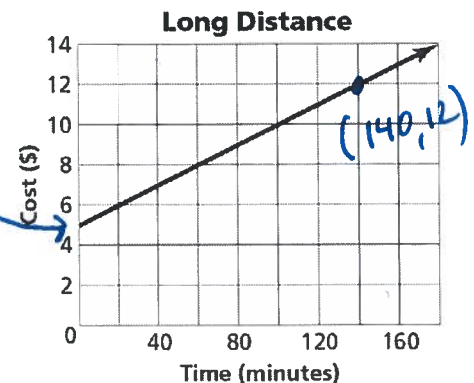


10. **COMMUNICATIONS** A telephone company charges \$4.95 per month for long distance calls plus \$0.05 per minute. The monthly cost c of long distance calls can be described by the equation $c = 0.05m + 4.95$, where m is the number of minutes.

- Find the *y*-intercept of the graph of the equation.
- If you talk 140 minutes, what is the monthly cost?

$\approx \$12$ or
 $c = .05(140) + 4.95$
 $= 11.95$

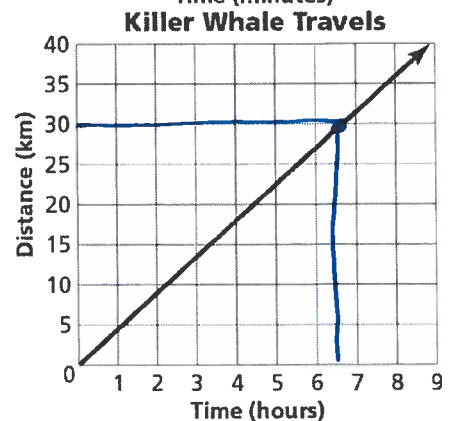
y-int
 4.95



11. **MARINE BIOLOGY** Killer whales usually swim at a rate of 3.2-9.7 kilometers per hour, though they can travel up to 48.4 kilometers per hour. Suppose a migrating killer whale is swimming at an average rate of 4.5 kilometers per hour. The distance d the whale has traveled in t hours can be predicted by the equation $d = 4.5t$.

- Use the graph to predict the time it takes the killer whale to travel 30 kilometers.

btwn 6 & 7 hours maybe 6.5 hrs.



3-1 Word Problem Practice

Graphing Linear Functions

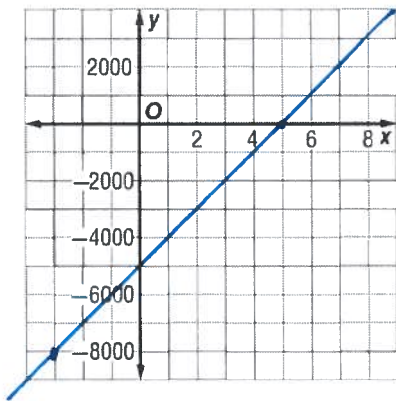
1. **FOOTBALL** One football season, the Carolina Panthers won 4 more games than they lost. This can be represented by $y = x + 4$, where x is the number of games lost and y is the number of games won. Write this linear equation in standard form.

$$x - y = -4$$

2. **TOWING** Pick-M-Up Towing Company charges \$40 to hook a car and \$1.70 for each mile that it is towed. The equation $y = 1.7x + 40$ represents the total cost y for x miles towed. Determine the y -intercept. Describe what the value means in this context.

y -int is 40. the fee to hook the car.

3. **BUSINESS** The equation $y = 1000x - 5000$ represents the monthly profits of a start-up dry cleaning company. Time in months is x and profit in dollars is y . The first date of operation is when time is zero. However, preparation for opening the business began 3 months earlier with the purchase of equipment and supplies. Graph the linear function for x -values from -3 to 8 .



4. **BONE GROWTH** The height of a woman can be predicted by the equation $h = 81.2 + 3.34r$, where h is her height in centimeters and r is the length of her radius bone in centimeters.

a. Is this a linear function? Explain.

Yes - can be written in standard form

b. What are the r - and h -intercepts of the equation?

Do they make sense in the situation? Explain.

h -int: 81.2

r -int: -24.3

No the -24.3 r -int means a negative bone radius, which would not make sense.

c. Use the function to find the approximate height of a woman whose radius bone is 25 centimeters long

165 cm.