

Name

Solutions

Solve the equation.

1)  $5x - (4x - 1) = 2$

$$5x - 4x + 1 = 2$$

$$x + 1 = 2$$

$$\boxed{x = 1}$$

2)  $-6x + 7(2x - 3) = -5 - 8x$

$$-6x + 14x - 21 = -5 - 8x$$

$$8x - 21 = -5 - 8x$$

$$16x - 21 = -5 \Rightarrow 16x = 16$$

$$\rightarrow \boxed{x = 1}$$

Solve for the specified letter.

3)  $V = \frac{1}{3}Bh$ , for  $h$

$$3V = Bh$$

$$\Rightarrow \boxed{h = \frac{3V}{B}}$$

Solve the problem.

- 4) Bill swims at a speed of 6.6 mph in still water. The river he's in flows at a speed of 5.7 mph. How long will it take Bill to swim 1.1 mi upstream? Round your answer to the nearest tenth of an hour, if necessary.

$$\text{Speed} = \frac{\text{Distance}}{\text{time}} \Rightarrow \text{time} = \frac{\text{Distance}}{\text{speed}} = \frac{1.1}{(6.6 - 5.7)} = \boxed{1.2 \text{ Hours}}$$

Find the function value.

5) Find  $f(2)$  when  $f(x) = \frac{x-7}{5x+6}$ .

$$f(2) = \frac{2-7}{10+6} = \boxed{\frac{-5}{16}}$$

- 6) Find
- $g(a) - 1$
- when
- $g(x) = 5x - 2$
- . (Please simplify your answer)

$$g(a) - 1 = 5a - 2 - 1 = \boxed{5a - 3}$$

7) Find  $g(a-1)$  when  $g(x) = 5x - 4$ . (Please simplify your answer)

$$g(a-1) = 5(a-1) - 4 = 5a - 5 - 4 = \boxed{5a - 9}$$

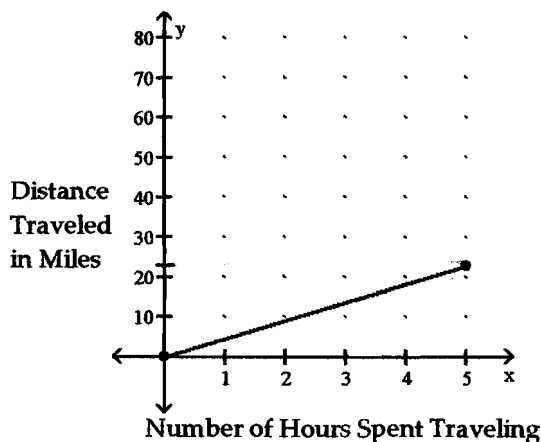
Solve the problem.

8) The function  $h$  described by  $h(t) = -16t^2 + 33.1t + 124.26$  gives the height of a ball thrown upward with a speed of 33.1 feet per second from a 124.26 ft high window  $t$  seconds after it is thrown until it hits the ground. Find the height of the ball 1.8 seconds after it is thrown.

$$h(1.8) = -16(1.8)^2 + 33.1(1.8) + 124.26 = \boxed{132 \text{ feet}}$$

Find the rate of change. Use appropriate units.

9)



(time (HR), Distance (miles))

(0, 0)

(5, 23)

$$\text{Avg Rate of Change} = \frac{23 - 0}{5 - 0} = \boxed{4.6 \text{ mph}}$$

Solve the problem.

10) A deep sea diving bell is being lowered at a constant rate. After 8 minutes, the bell is at a depth of 400 feet. After 45 minutes the bell is at a depth of 1300 feet. What is the average rate of lowering per minute?

(<sup>min</sup>8, <sup>feet</sup>400)  
(45, 1300)

$$\text{Avg Rate} = \frac{1300 - 400}{45 - 8} = \boxed{24.32 \frac{\text{ft}}{\text{min}}}$$

ame

## Solutions

Solve for the specified letter.

1)  $V = \frac{1}{3}Bh$ , for  $h$

$$3V = Bh \Rightarrow h = \frac{3V}{B}$$

Solve the equation.

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

$$9x - 8x - 12 = -2 - 9x$$

$$\begin{array}{r} x - 12 = -2 - 9x \\ +9x + 12 \quad +12 + 9x \end{array}$$

$$10x = 10 \Rightarrow x = 1$$

3)  $6x - (3x - 1) = 2$

$$6x - 3x + 1 = 2$$

$$3x + 1 = 2$$

$$3x = 1 \Rightarrow x = \frac{1}{3}$$

Find the function value.

4) Find  $g(a-1)$  when  $g(x) = 5x - 2$ . (Please simplify your answer)

$$g(a-1) = 5(a-1) - 2 = 5a - 5 - 2 = 5a - 7$$

5) Find  $g(a)+1$  when  $g(x) = 5x + 4$ . (Please simplify your answer)

$$g(a)+1 = 5a+4+1 = 5a+5$$

6) Find  $f(-4)$  when  $f(x) = \frac{x-4}{6x+7}$ .

$$f(-4) = \frac{-4-4}{6(-4)+7} = \frac{-8}{-24+7} = \frac{-8}{-17} = \frac{8}{17}$$

ame

Solutions

Solve for the specified letter.

1)  $V = \frac{1}{3}Bh$ , for  $h$

$$3V = Bh \Rightarrow h = \frac{3V}{B}$$

Solve the equation.

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

$$9x - 8x - 12 = -2 - 9x$$

$$\begin{array}{r} x - 12 = -2 - 9x \\ +9x + 12 \quad +12 + 9x \end{array}$$

$$10x = 10 \Rightarrow x = 1$$

3)  $6x - (3x - 1) = 2$

$$6x - 3x + 1 = 2$$

$$3x + 1 = 2$$

$$3x = 1 \Rightarrow x = \frac{1}{3}$$

Find the function value.

4) Find  $g(a-1)$  when  $g(x) = 5x - 2$ . (Please simplify your answer)

$$g(a-1) = 5(a-1) - 2 = 5a - 5 - 2 = 5a - 7$$

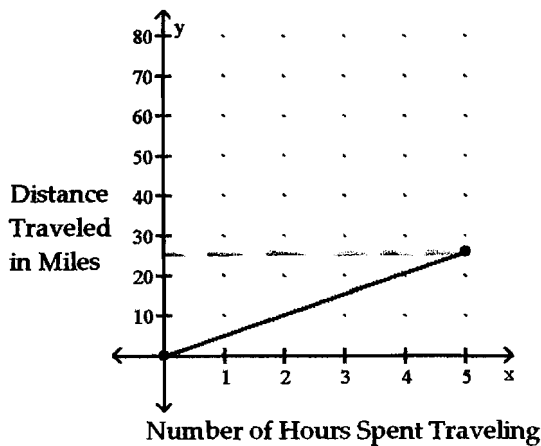
5) Find  $g(a)+1$  when  $g(x) = 5x + 4$ . (Please simplify your answer)

$$g(a)+1 = 5a+4+1 = 5a+5$$

6) Find  $f(-4)$  when  $f(x) = \frac{x-4}{6x+7}$ .

$$f(-4) = \frac{-4-4}{6(-4)+7} = \frac{-8}{-24+7} = \frac{-8}{-17} = \frac{8}{17}$$

Find the rate of change. Use appropriate units.



$$(0_{HR}, 0_{miles})$$

$$(5_{HR}, 25_{miles})$$

$$\text{Rate of Change} = \frac{25-0}{5-0} = \frac{25}{5} = 5 \text{ mph}$$

Solve the problem.

8) A deep sea diving bell is being lowered at a constant rate. After 8 minutes, the bell is at a depth of 500 feet.

After 55 minutes the bell is at a depth of 1800 feet. What is the average rate of lowering per minute?

$$(8, 500); (55, 1800) \quad \text{Avg Rate} = \frac{1800-500}{55-8} = 27.66 \text{ feet per min}$$

9) Bill swims at a speed of 6.7 mph in still water. The river he's in flows at a speed of 2.1 mph. How long will it take Bill to swim 1.7 mi upstream? Round your answer to the nearest tenth of an hour, if necessary.

$$\text{speed} = \frac{\text{Distance}}{\text{time}} \Rightarrow \text{time} = \frac{\text{Distance}}{\text{speed}} = \frac{1.7}{(6.7-2.1)} = 0.369 \text{ HR} = 0.4 \text{ HR}$$

10) The function  $h$  described by  $h(t) = -16t^2 + 33.1t + 124.26$  gives the height of a ball thrown upward with a speed of 33.1 feet per second from a 124.26 ft high window  $t$  seconds after it is thrown until it hits the ground. Find the height of the ball 1.2 seconds after it is thrown.

$$h(1.2) = -16(1.2)^2 + 33.1(1.2) + 124.26 = 140.94 \text{ feet}$$

Name \_\_\_\_\_

## Solutions

Solve the equation.

1)  $5x - (4x - 1) = 2$

$$5x - 4x + 1 = 2$$

$$x + 1 = 2$$

$$\begin{array}{r} -1 \\ -1 \end{array}$$

$$\boxed{x = 1}$$

2)  $-6x + 7(2x - 3) = -5 - 8x$

$$-6x + 14x - 21 = -5 - 8x$$

$$8x - 21 = -5 - 8x$$

$$16x = 16$$

$$\boxed{x = 1}$$

Solve for the specified letter.

3)  $V = \frac{1}{3}Bh$ , for  $h$

$$3V = Bh$$

$$\Rightarrow \boxed{h = \frac{3V}{B}}$$

Solve the problem.

- 4) Bill swims at a speed of 6.6 mph in still water. The river he's in flows at a speed of 5.7 mph. How long will it take Bill to swim 1.1 mi upstream? Round your answer to the nearest tenth of an hour, if necessary.

$$\text{time} = \frac{\text{Distance}}{\text{speed}} = \frac{1.1}{(6.6 - 5.7)} = \boxed{1.2 \text{ HR}}$$

Find the function value.

5) Find  $f(2)$  when  $f(x) = \frac{x-7}{5x+6}$ .

$$f(2) = \frac{2-7}{5(2)+6} = \boxed{\frac{-5}{16}}$$

- 6) Find
- $g(a) - 1$
- when
- $g(x) = 5x - 2$
- . (Please simplify your answer)

$$g(a) - 1 = 5a - 2 - 1 = \boxed{5a - 3}$$

C-1

7) Find  $g(a-1)$  when  $g(x) = 5x - 4$ . (Please simplify your answer)

$$g(a-1) = 5(a-1) - 4 = 5a - 5 - 4 = 5a - 9$$

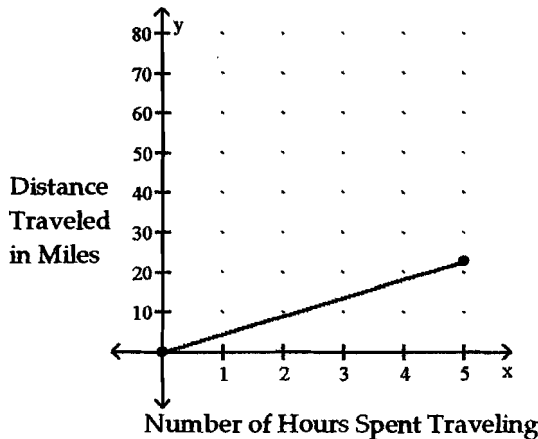
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$$h(1.8) = -16(1.8)^2 + 33.1(1.8) + 124.26 = 132 \text{ feet}$$

Find the rate of change. Use appropriate units.

9)



$$(0, 0)$$

$$(5, 22)$$

$$m = \frac{22 - 0}{5 - 0} = 4.4 \frac{\text{Miles}}{\text{HR}}$$

Solve the problem.

10) A deep sea diving bell is being lowered at a constant rate. After 8 minutes, the bell is at a depth of 400 feet. After 45 minutes the bell is at a depth of 1300 feet. What is the average rate of lowering per minute?

$$\begin{matrix} \text{min} & \text{feet} \\ (8, & 400) \\ \text{min} & \text{feet} \\ (45, & 1300) \end{matrix}$$

$$m = \frac{1300 - 400}{45 - 8} = 24.32 \frac{\text{feet}}{\text{min}}$$

## Solution

Solve the equation.

1)  $7x - (3x - 1) = 2$

$$7x - 3x + 1 = 2$$

$$4x + 1 = 2$$

$$4x = 1 \implies$$

$$x = \frac{1}{4}$$

2)  $-8x + 4(-3x - 4) = -31 - 5x$

$$-8x - 12x - 16 = -31 - 5x$$

$$-20x - 16 = -31 - 5x$$

$$-15x = -15 \implies$$

$$x = 1$$

Solve for the specified letter.

3)  $V = \frac{1}{3}Bh$ , for  $h$

$$3V = Bh \implies h = \frac{3V}{B}$$

Solve the problem.

- 4) A deep sea diving bell is being lowered at a constant rate. After 10 minutes, the bell is at a depth of 600 feet. After 50 minutes the bell is at a depth of 2000 feet. What is the average rate of lowering per minute?

(10, 600)  
min feet(50, 2000 feet)  
min

$$m = \frac{2000 - 600}{50 - 10} = \frac{1400}{40} = 35 \frac{\text{ft}}{\text{min}}$$

- 5) Bill swims at a speed of 4.9 mph in still water. The river he's in flows at a speed of 2.7 mph. How long will it take Bill to swim 2.8 mi upstream? Round your answer to the nearest tenth of an hour, if necessary.

$$\text{time} = \frac{\text{Distance}}{\text{speed}} = \frac{2.8 \text{ miles}}{4.9 - 2.7 \text{ mph}} = 1.3 \text{ HR}$$



the function value.

6) Find  $f(-4)$  when  $f(x) = \frac{x-4}{7x+3}$ .

$$f(-4) = \frac{-4-4}{7(-4)+3} = \frac{-8}{-25} = \frac{8}{25}$$

7) Find  $g(a+1)$  when  $g(x) = 4x + 1$ . (Please simplify your answer)

$$g(a+1) = 4(a+1) + 1 = 4a + 5$$

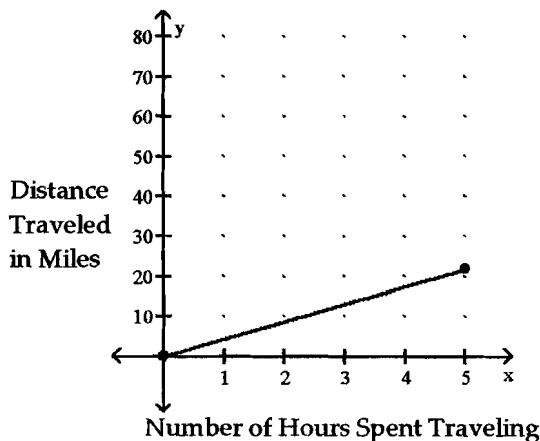
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$$h(1.1) = -16(1.1)^2 + 33.1(1.1) + 124.26 \\ = 141.31 \text{ feet}$$

Find the rate of change. Use appropriate units.

9)



$$(0,0) \\ (5,21)$$

$$m = \frac{21-0}{5-0} = 4.2 \frac{\text{Miles}}{\text{HR}}$$

Find the function value.

10) Find  $g(a)-1$  when  $g(x) = 5x - 5$ . (Please simplify your answer)

$$g(a)-1 = 5a-5-1 = 5a-6$$