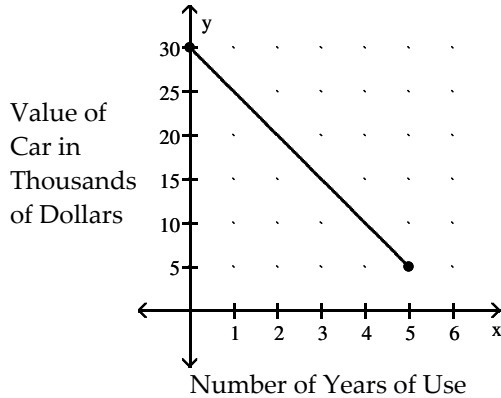


MATH 101/GRACEY  
 QUIZ 1/CHAPTER 1  
 20 POINTS POSSIBLE  
**EACH PROBLEM IS WORTH  
 2 POINTS**

Solve the problem.

- 1) Find the rate of change.



Compute and simplify the difference quotient

$$\frac{f(x+h) - f(x)}{h}, h \neq 0.$$

2)  $q(x) = \frac{4}{x+30}$

Write a slope-intercept equation for a line with the given characteristics.

- 3) Passes through (8, -7) and (1, 7)

Name \_\_\_\_\_

PLEASE BOX YOUR FINAL ANSWER

**FULL CREDIT MAY NOT BE GIVEN IF WORK  
 IS NOT SHOWN!**

Find the midpoint of the line segment joining the two points.

- 4) (2, 0) and (-1, 7)

Write a slope-intercept equation for a line with the given characteristics.

- 5)  $m = -\frac{9}{5}$ , passes through (-4, -1)

Find the requested measurement.

- 6) The points (-2, -3) and (7, 2) are the endpoints of the diameter of a circle. Find the length of the radius of the circle.

**Determine the equation of the line described. Put answer in the slope-intercept form, if possible.**

7) Through  $(-8, -3)$ , perpendicular to  $5x + 9y = -67$

**Write an equation for a function that has a graph with the given characteristics.**

9) The shape of  $y = x^3$  is shifted 6.0 units to the right and then vertically shrunk by a factor of 0.4.

**Solve.**

8) Acme Communication finds that the total revenue function associated with producing a new type of cellular phone is  $R(x) = 212x - x^2$ , and the total cost function is  $C(x) = 8000 + 9x$ , where  $x$  represents the number of units of cellular phones produced. Find the total profit function,  $P(x)$ .

**Find the domain of the function. GIVE YOUR RESULT IN INTERVAL NOTATION.**

10)  $f(x) = \frac{1}{x^2 + 4x - 21}$