Math 188 CHAPTER 1 – 2

1 Solve for x.

$$\frac{qx+p}{rx+m}=3$$

_____

2. Use a graphing calculator to solve for x to 2 decimal places. (Use an appropriate viewing rectangle.)

$$4-x^2=3-\sqrt{x+3}$$

_____

3. Solve for x: $(x+3)^2=(2x-5)^2$ _____

4. Find the equation for the line that passes through $(2, -1)$ and is perpendicular to $2x - 5y + 15 = 0$.

_____

5. Simplify: $\sqrt[3]{(x^3y)^2y^4}$

_____

6. A swimming pool holds 8464 ft^3 of water. The pool is 8 ft deep and twice as long as it is wide. What are the dimensions of the pool?

eq:_____

answer:_____

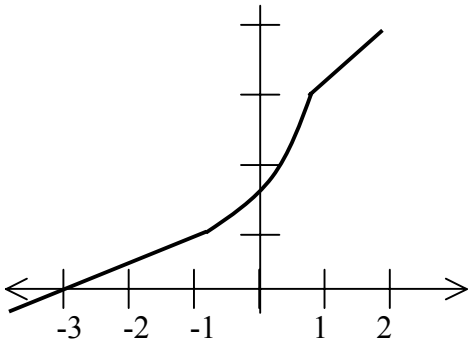
7. A man is at point A on the bank of a straight river that is 2 miles wide. He wants to reach point B, 7 miles down stream on the opposite bank. He wants to row to point P on the opposite bank and then walk the remaining distance (x) to point B. He can row at a speed of 2 mph and walk at a speed of 5 mph. Where should he land the boat in order to reach B in the least amount of time?

eq:_____

answer:_____

8. Sketch the graph of $f(x)=\begin{cases} x+6 & \text{if } x<-2 \\ x^2 & \text{if } x\geq -2 \end{cases}$

9. Given the graph:



a) Graph: $y = 2 - f(x-1)$

b) Graph: $y = f^{-1}(x)$

10. Given: $f(x) = \sqrt{x}$ and $g(x) = \dfrac{2}{x-4}$. Find $f \circ g$. _____

11. a) Is $f(x) = 2 + x^3$ one-to-one? _____

b) Find the inverse function of $f(x) = 2 + x^3$. _____

Extra Credit: A rectangle is inscribed in an equilateral triangle with a perimeter of 42 in.

a) Express the area (A) of the rectangle as a function of the length of the rectangle (x).

b) Find the dimensions of the rectangle with the largest area.