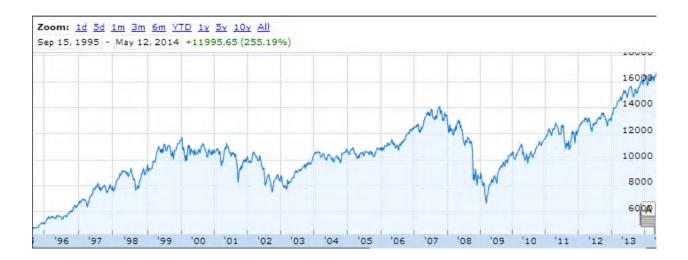
<u>10.1 – Properties of Functions</u>

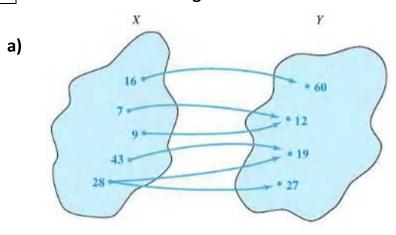


| A | is a rule or relationship that assigns each element | | | | | | | |
|-------------------------|-----------------------------------------------------|-----------------------------------------|--|--|--|--|--|--|
| from one set to | | element from another set. | | | | | | |
| Another way to say thi | s is, every | has exactly one | | | | | | |
| We've already worked | with functions in | previous quarters and specifically with | | | | | | |
| linear functions at the | beginning of this o | quarter. Let's review: | | | | | | |
| Domain: | | | | | | | | |
| Range: | | | | | | | | |

The Dow Jones Industrial Average is a good example a function that investors care about.



#1. Which of the following are functions?



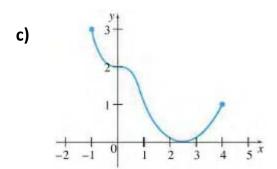
- b) The $\sqrt{}$ key on the calculator.
- c) The set of ordered pairs with the 1st element being fathers and the second being their children.
- d) The set of ordered pairs with the $\mathbf{1}^{st}$ element being SID numbers and the $\mathbf{2}^{nd}$ being Highline students.

What about the reverse?

#2. Which of the following are functions? If so, state their Domain and Range.

a)
$$y = 3 - 2x^2$$

b)
$$y^2 = x$$



#3. Find the domain and range of the following functions.

a)
$$y = \sqrt{7-x}$$

b)
$$y = \frac{5}{x^2 - 16}$$

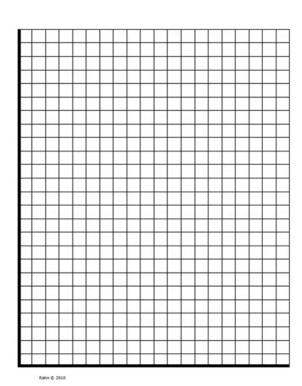
#4. Given the function $h(x) = -x^2 - 2x + 3$

a)
$$h(2)$$

b)
$$h(a)$$

c)
$$h(x+h)$$

#5. You want to rent a paddle boat at a lake where you're vacationing. They charge \$8 for the first two hours, and then \$3 per hour for each additional hour or portion of an hour. Let P(h) represent the cost to rent the paddle boat for h hours. Graph P(h) over the interval (0,8]



This is called a _____ function.

The following is an example of a ______ function.

#6. The amount you pay for your medical costs through your medical insurance is according to the following.

- The first \$500 of medical costs you pay for 100%. (This is a **deductible**.)
- From \$500.01 to \$6,500, you pay **coinsurance** of 25%.
- Beyond \$6,500, you pay no more medical costs.

Create a piecewise function using function notation to represent this, where x is your medical costs incurred, C(x) is your total amount that you pay for the cost.

$$C(x) = \begin{cases} \\ \end{cases}$$

What is the maximum that you could spend on medical costs? (This is the **max out-of-pocket cost**.)

Create a graph of this Piecewise function. Let every tick be \$500.

Medical Costs out of your pocket

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