

**Section 2.1**

Examples from the section to know (and the Progress Check after it):

- ▷ EXAMPLE 3, 4, 6, 8

Homework problems to review:

- ▷ HW# 23, 31, 33, 35, 37, 39, 41-49 odd, 51-59 odd

**Section 2.2**

Examples from the section to know (and the Progress Check after it):

- ▷ EXAMPLE 4, 5, 6, 10, 11, 12, 13

Homework problems to review:

- ▷ HW# 11, 45-51 odd, 61-69 odd, 75

**Section 2.3**

Examples from the section to know (and the Progress Check after it):

- ▷ EXAMPLE 2, 3, 5, 6, 7

Homework problems to review:

- ▷ HW# 7-13 odd, 21-27 odd

**Section 2.4**

Examples from the section to know (and the Progress Check after it):

- ▷ EXAMPLE 3, 4, 5, 7, 8, 9

Homework problems to review:

- ▷ HW# 3, 5, 15, 23, 29, 33, 35, 45, 49, 57, 64, 67-73 odd

**Section 2.5**

Examples from the section to know (and the Progress Check after it):

- ▷ EXAMPLE 1, 3, 5, 6, 7

Homework problems to review:

- ▷ HW# 21, 23, 25, 39, 47, 55, 57, 59

**Section 2.6**

Examples from the section to know (and the Progress Check after it):

- ▷ EXAMPLE 2, 3, 4, 5, 6, 7

Homework problems to review:

- ▷ HW# 3, 9, 11, 15, 17, 21, 23, 31, 33

**Section 2.7**

Examples from the section to know (and the Progress Check after it):

- ▷ EXAMPLE 1, 2, 4, 7, 8

Homework problems to review:

- ▷ HW# 1, 3, 7, 9, 17, 19, 21, 23, 25, 29, 35, 39

**Section 2.8**

Examples from the section to know (and the Progress Check after it):

- ▷ EXAMPLE 1, 2, 5, 6, 7, 9

Homework problems to review:

- ▷ HW# 1, 3, 7, 9, 17, 19, 21, 23, 25, 29, 35, 39

**Variation**

“y varies directly as x” use  $y = kx$

“y varies inversely as x” use  $y = \frac{k}{x}$

**Difference Quotient:**  $\frac{f(x+h) - f(x)}{h}$

**Inequalities:**

Know both the algebraic and graphing approach. Study 2.6 ditto.

**Distance Formula:**

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

**Slope Formula:**  $m = \frac{y_2 - y_1}{x_2 - x_1}$

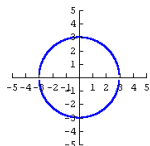
The **slope-intercept form** is  $y = b + mx$  where  $m$  is the slope and  $b$  is the y-intercept.

The **point-slope form** is  $y - y_1 = m(x - x_1)$  where  $m$  is the slope and  $(x_1, y_1)$  is a point on the line.

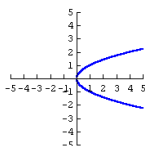
**READ, REVIEW, and UNDERSTAND** the “Chapter 2 Overview” on pages 145-146

**Review Questions**

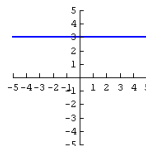
- Express the cost,  $C$ , of a taxi ride as a function of the number of miles,  $n$ , traveled if the taxi ride costs \$2 plus \$.05 for every mile traveled.
- Is the relation  $\{ (2, 1), (3, 2), (4, 1) \}$  a function? What is the domain and range?
- Determine the domain & range of the function: (a)  $y = \sqrt{x+4}$  and (b)  $y = \frac{2}{x-3}$ .
- If  $(c, -2)$  is a solution of the equation  $y = -2x + 8$ , find the value of  $c$ .
- Graph  $-x + 2y = -4$  by using the  $x$ - and  $y$ - intercepts **and** using the graphing calculator.
- Which graph is the graph of a function?



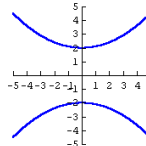
a.



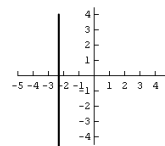
b.



c.



d.



e.

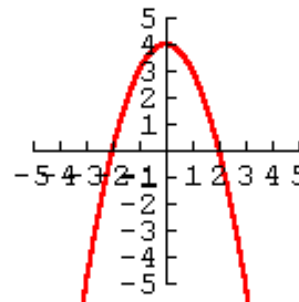
- If  $y$  varies inversely as  $x^2$  and  $y = 3$  when  $x = 2$ , find  $y$  when  $x = 6$
- If  $y$  varies directly as  $x$  and  $y = 2$  when  $x = 7$ , find  $y$  when  $x = -21$
- Property tax varies directly as assessed valuation. The tax on property assessed at \$12,000 is \$400. What is the tax on property assessed at \$30,000?

10. If  $f(x) = x + 3$  and  $g(x) = -2x$  find (a)  $3f(-1) - 2g(4)$  (b)  $\frac{g(5)}{4f(-6)}$  (c)  $g(a+3)$

11. Write the difference quotient for  $f(x) = x^2 + 2x$  and **simplify**.

12. If  $f(x) = \begin{cases} -4 & \text{if } x < 1 \\ x+2 & \text{if } x \geq 1 \end{cases}$  find (a)  $f(1)$  (b)  $f(0)$  (c) the domain (d) the range

13. Using the graph to the right



- What is the domain of the function?
- What is the range of the function?
- For what values of  $x$  is  $f(x) \geq 0$ .
- For what values of  $x$  is  $f(x) < 0$ .
- Solve  $f(x) = 0$ .
- Find  $f(0)$

14. Sketch the graph of  $y = 5 - (x + 3)^2$ , using transformations on the graph  $f(x) = x^2$ . Label the maximum or minimum point and the  $y$ -intercept.

15. Solve  $|6x - 4| = 14$  using an algebraic approach and check your answer with a graphically.

16. Solve  $|x + 6| < 9$  using an algebraic approach and check your answer with a graphically.

17. Solve  $|2 + 3x| \geq 1$  using an algebraic approach and check your answer with a graphically.

18. Find the distance between the points  $(-5, 1)$  &  $(3, 7)$

19. Find the area of a circle if the radius extends from  $(-2, 5)$  to  $(5, -1)$  (leave your answer in terms of  $\pi$ ).

20. The shipping costs ( $y$ ) charged by a delivery service have a linear relationship with the weight ( $x$ ) of the parcel. The charge is \$1.98 for a 5 oz. parcel and \$2.23 for a 10 oz. parcel. Calculate **and** interpret the slope of the line.

21. Find the slope of the line through the points: (a)  $(-1, 1)$  &  $(7, 1)$  (b)  $(4, 3)$  &  $(4, -1)$  (c)  $(-5, 1)$  &  $(3, 7)$