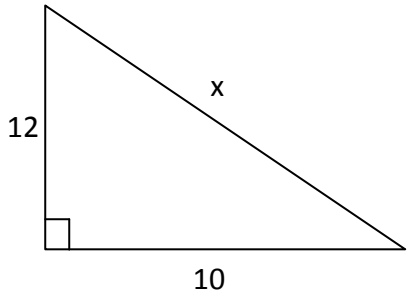
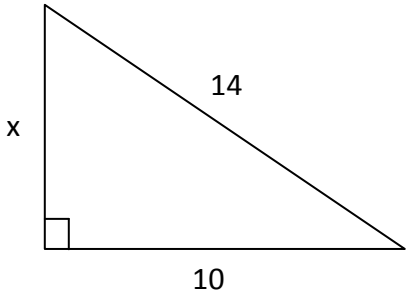
Basic Skills to Review for Math 10 Foundations and Pre-Calculus Final Exam

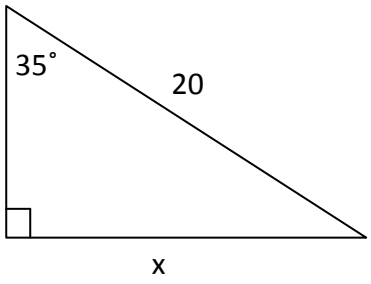
<u>From Chapter 2</u>

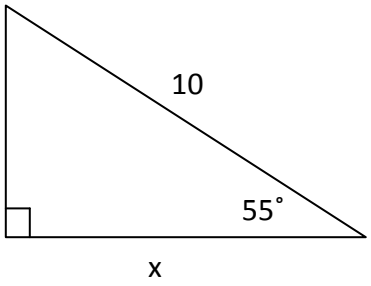
1) Solve for x. (Pythagorean Theorem)

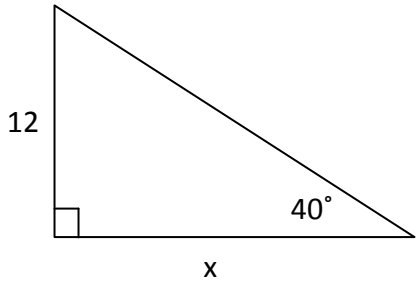


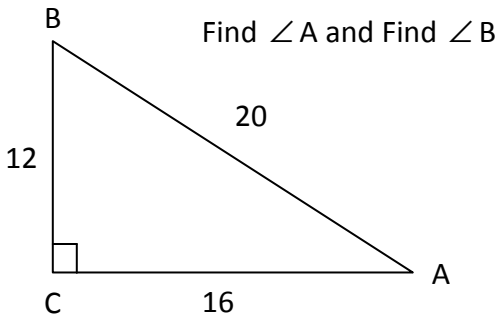


2) Solve for x. (Using Sin, Cos, Tan Ratios)









From Chapter 3

1) Multiply.

   a) $(x + 4)(x + 6)$

   b) $(2x – 3)(x + 5)$

   c) $(x + 4)(x^2 + 2x – 3)$

2) Factor.

   a) $3x – 6$

   b) $-5x + 10$

   c) $x^2 – 100$

   d) $4x^2 – 49$

   e) $x^2 + 8x + 12$

   f) $y^2 – 3y – 18$

   g) $6x^2 + 13x – 5$

   h) $3x^2 – 27$

From Chapter 4

1) Simplify the following radicals.

$\sqrt{50}$ $\sqrt{200}$ $\sqrt{64}$

$\sqrt[3]{80}$ $\sqrt[3]{128}$ $\sqrt[4]{80}$

2) Rewrite as an entire radical.

$2\sqrt{5}$

$4\sqrt[3]{3}$

3) Evaluate (without using a calculator).

$4^{\frac{3}{2}}$ $8^{\frac{4}{3}}$ $(-16)^{\frac{3}{2}}$

$\left(\frac{1}{8}\right)^{-\frac{1}{3}}$ $4^{-\frac{3}{2}}$ $16^{.75}$

4) Express each radical as a power.

$\left(\sqrt[3]{4}\right)^5$ $\sqrt{5.5}$

5) Simplify the following. Write all powers with positive exponents.

$\frac{x^2y^3}{xy^5}$ $\left(x^{-2}y^3\right)\left(x^4y^{-1}\right)$ $\left(\frac{x^2}{x^4}\right)^{-3}$

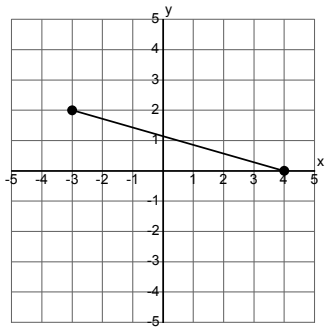
From Chapter 5

1) Write the Domain and Range for each of these relations.

   a) {(0,3) (1,4) (2, 5)}

      Domain: _____ Range: _____

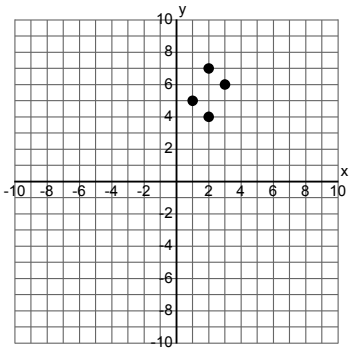
   b)



      Domain: _____

      Range: _____

2) Is the relation a function (yes or no)?



3) Is the function a linear relation (yes or no)?

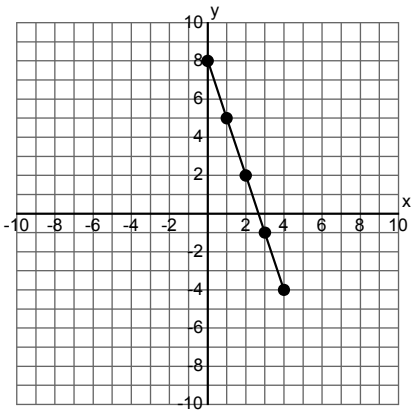
   a) {(0, 30) (1, 20) (2, 10) (3, 0)}

   b) {(1, 1) (2, 2) (3, 4) (4, 7) (5, 11)}

4) What is the rate of change for each linear relation below?

a) {(2, 10) (4, 20) (6, 30)}

b)

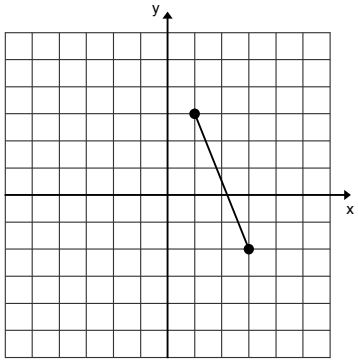


5) If the function is f(x) = 2x + 4, find f(3).

From Chapter 6

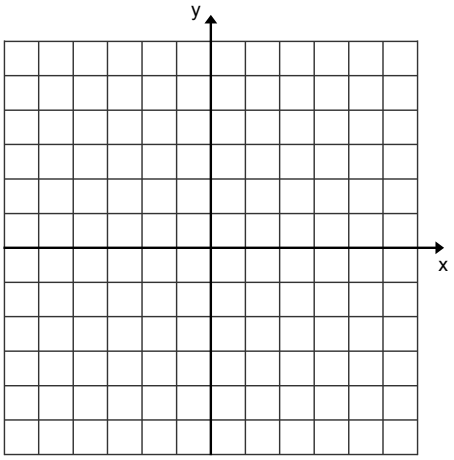
1) What is the slope of the line $y = 2x + 3$?

2) What is the slope of the following graph?



3) What is the slope of the line that passes through the points (3, 6) and (-1, 4)?

4) Graph the line $2x + y = -3$.



5) Identify the slope and the coordinates of a point on the line of the equation $y + 5 = -2(x - 4)$.

6) Write an equation in the form $y - y_1 = m(x - x_1)$ (slope/point form) for the graph of a linear function that passes through the points (1, 4) and (3, 7).

7) Write the equation of the line in the form $y = mx + b$ (slope/intercept form) that has a y-intercept of 5 and is perpendicular to the line with an equation $y = 2x + 3$.

8) Rewrite the equation $3x + 2y - 6 = 0$ into the form $y = mx + b$ (slope/intercept form).

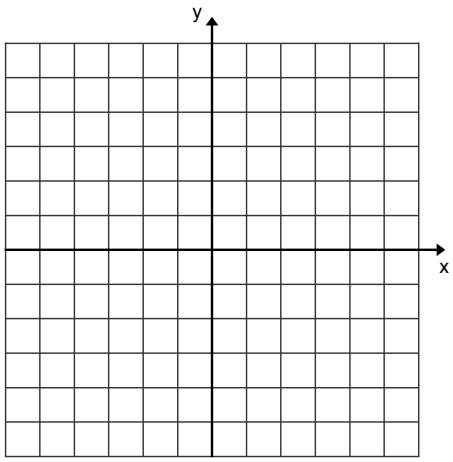
From Chapter 7

1) Is the point (2,3) a solution to the system below? (Why or why not?)

$3x - 2y = 0$
$x = y - 1$

2) Solve the following system using the **Graphic Method**.

$y = 2x + 2$
$x + y = 5$



Solution is _____

3) Solve the following system using the **Substitution Method**.

$2x + 3y = 11$
$y = 2x + 1$

Solution is _____

4) Solve the following system using the **Elimination Method**.

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

5) How many solutions (none, infinite, one) does the system have?

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

b) $-2x + y = 4$
$4x - 2y = -8$

6) Word Problem: Write the linear system that would help you solve the problem. (Be sure to identify your variables with LET statements.) You do not need to solve the problem.

a) The perimeter of a rectangle is 150 cm. If the length is twice the width, find the length and width of the rectangle.

b) The cost of 2 adult tickets and 3 child tickets is $35.00. The cost of 4 adult tickets and 1 child ticket is $45.00. What is the price for the adult and the child tickets?

Formulas for Math 10 Final Exam

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

Slope-Intercept Formula: $y = mx + b$

Slope-Point Formula: $y - y_1 = m(x - x_1)$

General Form: $Ax + By + C = 0$

$a^2 + b^2 = c^2$ OR $a^2 = c^2 - b^2$

$$\text{SIN of an angle} = \frac{\text{side opposite the angle}}{\text{hypotenuse}}$$

$$\text{COS of an angle} = \frac{\text{side adjacent the angle}}{\text{hypotenuse}}$$

OR **SOHCAHTOA**

$$\text{TAN of an angle} = \frac{\text{side opposite the angle}}{\text{side adjacent the angle}}$$