**Unit 3: Linear Equations and inequalities**

**Lesson 1: Solutions and intercepts of Linear Equations**

Objectives:

* I can evaluate a linear equation for one variable when I have the value of the second variable.
* I can calculate the intercepts of a linear equation algebraically
* I can change the form of the linear equation to the slope-intercept form or the standard form

Agenda:

* Video
* Remember past skills
* Use all your skills
* Challenge yourself

Vocabulary:

* Linear equation, ordered pair, slope-intercept form, y-intercept, x-intercept, standard form.

Focus Questions:

1. What is the solution for a linear equation?
2. What are the intercepts of a linear equation?

Web support:

- <https://www.youtube.com/watch?v=p3Cohshlw90>

- <https://www.youtube.com/watch?v=giAcyFvszaY>

- <https://www.youtube.com/watch?v=sM4xfdYTK5M>

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Web Practice:

* <https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-linear-equations-functions/linear-nonlinear-functions-tut/e/linear-non-linear-functions>

Homework: Finish your work

**Do Now: Discuss and solve**

1. A health club charges $400 for a one-time joining fee and then $65 per month for membership.
2. Write an equation that shows the total amount of money (in dollars), d, that someone would spend on gym membership for t months.
3. How much would the person have spent after 1 month? 6 months?
4. What is the slope of this function? What does it mean in the context of this story?
5. What is the y-intercept of this function? What does it mean in the context of this story?
6. After how many months would someone have spent $1,830 on gym membership?

**Notes: Linear VS non Linear:** <https://www.youtube.com/watch?v=p3Cohshlw90>

 And Introduction to graphing using he graphing calculator. Sketch

1. Label the following equations as linear or nonlinear equations and justify your answer:
2. $y=x^{2}+1$ b. $ 2x-3y=8 $ c. $2x^{3}-9=y$

 d. $ y=-3$ e. $ y=1+3x$ f. $x= 3$

Evaluating Equations: <https://www.youtube.com/watch?v=giAcyFvszaY>

Find the solution or ordered pair of the following linear equations when $x=6$

$a. y=-2x+5$ b. $-4x+3y=9$

Sketch:

<https://www.youtube.com/watch?v=wPs0tjl8Vpg>

1. Find the y-intercept of the following equations algebraically:
2. $y=-2x+5$ b. $-4x+3y=9$

Find the x-intercept first.

Standard form vs slope intercept form

<https://www.youtube.com/watch?v=RubZ-JutHVI>

4. Put the following equations in the slope y-intercept then identify the slope and the y-intercept.

 a. $y-1= 3 x $ b. $y-3=\frac{1}{2}x$

C. y + 5= 6x d. $ 0.3x+0.2y=10$.

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_

Homework 3-1 Linear Equations

1. Felicia Johnson paid $125 to join a tennis club. She pays an additional $5 every time she uses one of the club’s tennis courts.
2. Write an equation that describes Felecia’s total cost, *C*, as a function of the number of times she plays, *n*.
3. Felicia does not want to spend more than $275 to play tennis during the summer. What is the maximum number of times she can play tennis on the club’s courts for this amount?
4. State the slope and the y-intercept and their meaning in the context of the problem
5. Rewrite the following equations in the slope y-intercept first then identify the slope and the y-intercept.

$a. y+4= -\frac{3}{4}x b. $ $ 3\left(x-3\right)=y-6$







