**Unit 3: Linear Equations and Inequalities**

**Lesson 6: Solutions and Graphs & Mixed practice**

**Objectives:**

* **Students can identify the solution for linear equations.**

**Agenda:**

* **Warm Up: Independent vs dependent variables.**
* **Practice: Applied problems**
* **Discuss homework.**

**Vocabulary:**

* **Independent /Dependent.**

**Web Support:**

**Introduction:** [**https://youtu.be/-mVHzIDN0A8**](https://youtu.be/-mVHzIDN0A8)

**Practice:** [**https://youtu.be/dsrJBWxwUyY**](https://youtu.be/dsrJBWxwUyY)

**Homework: Unit 3 test in two classes next Class: Work on study guide portfolio.**

**Do Now**

1. Write an equation of a line that passes through the points (3,4) and (-6,10) in two different forms. Label each form
2. Write an equation of a line that passes through the points (-3,4) and has a slope of -5.
3. **If point (3,k) is a point on the line above, show algebraically the value of k.**
4. ) What is the leading coefficient of the following polynomial: $x^{3}+5x+2=-3$

5) If *x* and *y* are defined as indicated by the accompanying table, which equation correctly represents the relationship between *x* and *y*? Show two different ways on how you arrived at your answer.

1. *y* = *x* + 2
2. *y* = 2*x* + 2
3. *y* = 2*x* + 3
4. *y* = 2*x* - 3
5. **Provide one example of a line that has a 0 slope and one example of a line that has an undefined slope.**

**Solving System of equations graphically**

[**http://www.virtualnerd.com/algebra-2/linear-systems/graphing/solve-by-graphing/equations-solution-by-graphing**](http://www.virtualnerd.com/algebra-2/linear-systems/graphing/solve-by-graphing/equations-solution-by-graphing)

1. **Solve the following System of equations graphically following the steps in the video:**

$$y=2x+5$$

$$y=-x+2$$

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1. **And this**

$$y=\frac{1}{3}x+5$$

$$y+x=5$$

**Practice Test Unit 3: Review multiple choice for the unit Test**

|  |  |
| --- | --- |
| 1. Which of the following is a linear equation:

$1$. $-3x+2$ 3. $x^{3}+5x+2=-3$1. $-x+7y=12$ 4. $x^{2}+2x+4=4$
 | Justify |
| 1. If (*k*, 4) is a point on the graph of the equation 4*x* + 2 *y* = 4, what is the value of *k*?
2. 1 3.   6
3. -1 4. -6
 |  |
|

|  |  |
| --- | --- |
| **x** | **y** |
| -2 | -9 |
| 0 | -6 |
| 2 | -3 |
| 4 | 0 |

1. Use the table below to find the *x*- and *y*-intercepts.
2. *x*-intercept: -6; *y*-intercept: 4
3. *x*-intercept: 4 ; *y*-intercept: -6
4. *x*-intercept: -6; *y*-intercept: -9
5. *x*-intercept: -2; *y*-intercept:-6
 |  |
| * 1. https://www.castlelearning.com/Review/Courses/integratedalgebra/q4584-3.gif?v=20110627111904Which equation is represented by the graph of line *L*?
1. $x = \frac{-2}{3}y + 2$
2. $y = \frac{-2}{3} x+ 2$
3. $y = 2x + \frac{-2}{3}$
4. $y = \frac{-2}{3} x+ 3$
 |  |
| * 1. What is the *y*-intercept of the graph of the equation *y* = -https://www.castlelearning.com/Review/Courses/algebra/two-thirds.gif?v=20020424101552*x* + 4?
1. -https://www.castlelearning.com/Review/Courses/algebra/two-thirds.gif?v=20020424101552 2. -2 3. 3 4. 4
 |  |
| * 1. https://www.castlelearning.com/Review/Courses/integratedalgebra/q4560.gif?v=20110623021248Use the graph below to find the *x*-and *y*-intercepts.
1. *x*-intercept: 2; *y*-intercept: 6
2. *x*-intercept: –3 ; *y*-intercept: 6
3. *x*-intercept: 2; *y*-intercept: –3
4. *x*-intercept: 6; *y*-intercept: 2
 |  |
| https://www.castlelearning.com/Review/Courses/algebra/ma69918.gif?v=200107230917387) What is the slope of line *l* shown in the accompanying diagram?1. https://www.castlelearning.com/Review/Courses/algebra/four-thirds.gif?v=20020509120250 3. https://www.castlelearning.com/Review/Courses/algebra/three-fourths.gif?v=20020502093208
2. -https://www.castlelearning.com/Review/Courses/algebra/three-fourths.gif?v=20020502093208 4. -https://www.castlelearning.com/Review/Courses/algebra/four-thirds.gif?v=20020509120250
 |  |
| 8) Which graph represents the equation $Y= 3$?1. https://www.castlelearning.com/Review/Courses/algebra/q402-1.gif?v=20090420070540 3. https://www.castlelearning.com/Review/Courses/algebra/q402-2.gif?v=20090420070540
2. https://www.castlelearning.com/Review/Courses/algebra/q402-3.gif?v=20090420070540 4. https://www.castlelearning.com/Review/Courses/algebra/q402-4.gif?v=20090420070540
 | Justify |
| 9) Maddi bought 3 brownies for 4 dollars. which of the following statements is true:* + 1. The independent variable is the cost in dollars, the dependent variable is number of brownies, and the slope is $\frac{4}{3}$
		2. The independent variable is the number of brownies, the dependent variable is cost in dollars, and the slope is $\frac{3}{4}$
		3. The independent variable is the cost in dollars, the dependent variable is number of brownies, and the slope is $\frac{3}{4}$
		4. The independent variable is the number of brownies, the dependent variable is cost in dollars, and the slope is $\frac{4}{3}$
 |  |

**Extended Response Questions:**

10)Find the x intercept and the y-intercept of the following equation algebraically, sketch it.

$$4x-2y=16$$

* 1. The Sparrow town High School science department has $4,700 to spend on textbooks this year. The department needs to buy both Biology textbooks(x), which cost $97 apiece, and Chemistry textbooks(y), which cost $60 apiece.
1. Write a linear inequality to describe this situation.
2. What is the maximum number of biology text books that can be purchased if 20 Chemistry books are purchased?
3. Can the department purchase 15 chemistry text books and 12 biology text books without being over budget?

**Dig in to that portfolio……**