Math Review Sheets
Math 70 – Elementary Algebra

The purpose of this Review Sheet is to provide students a comprehensive review of items that are taught in Math 70 classes. It is the KCC Math Department's objective to ensure students who enter a math class have the ability to perform satisfactorily in areas of study that are taught in the preceding class in the math sequence. The placement exam is only a small sampling of your knowledge. This set of problems offers a more comprehensive review to ensure the student possesses the skills expected of a student entering Math 95.

If you have been placed into Math 70 and feel you should have been placed higher, it is highly suggested you complete this review sheet before returning to retake the COMPASS exam.

Placement into a higher math class does not always ensure you have mastered the concepts expected of the prerequisite class. If you have placed into Math 95, it is suggested you review these sheets before the beginning of the term. Some topics covered in this review sheet will be taught as review in Math 95, but will be taught from the perspective that you have a familiarity with the topic.

How these sheets are helpful:

- To help students who have been out of school for some period of time and need to refresh their skills before returning
- To help students review before a placement exam
- To help you decide which math class is best for you. Your success and enjoyment of Math is usually based on getting started at the right level. Use this problem set along with the COMPASS exam to determine if your skill level is appropriate to move on to Math 95.
- To help students refresh their math skills during breaks between terms.

How to do the review:

- Pace yourself and don't rush. This is a comprehensive review of topics discussed from the adopted textbook for Math 70. It covers a variety of topics and it is not expected to be completed in one sitting.
- If you are having difficulty with a topic, consult the Learning Resources Center (LRC) for a copy of a textbook to borrow to help you relearn the concepts, or you may want to study with one of the on-site tutors. The whole point of these problems is to help you become more proficient in your math abilities. There are also many good web sites available to help you freshen up your knowledge of the concepts.
- Don't use these sheets as a substitution for taking a class. This review is designed to help you determine if you have the skills to proceed beyond Math 70.

This collection of Math 70 review problems have been taken from the adopted textbook of Klamath Community College. Further review of these materials can be found in the text.

Source: Angel, Allen R. Elementary Algebra for College Students 6th Edition. New Jersey: Pearson Education, Inc., 2004. A copy of this book is on reserve at the Learning Resources Center at KCC along with other learning aides.

1. Simplify

$6(4x-5)$

$-3(2a-5b+7)$

$2x+3(x+4)-5$

$\frac{1}{4}d+2-\frac{3}{5}d+5$

2. Solve

$2x+4=8$

$-12=3(2x-8)$

$4+3(x+2)=10$

$\frac{2}{3}w=\frac{1}{7}(w-2)$

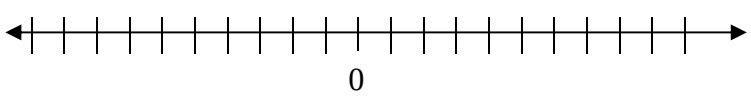
$2(x+7)=6x+9-4x$

$\frac{5}{20}=\frac{x}{80}$

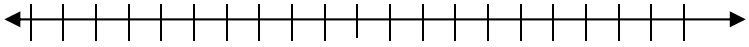
$\frac{-4}{9}=\frac{-16}{x}$

3. Solve each inequality and graph on the number line

$3x+4\geq 10$

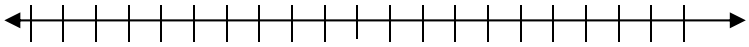


$5-3r \le 2r+15$



0

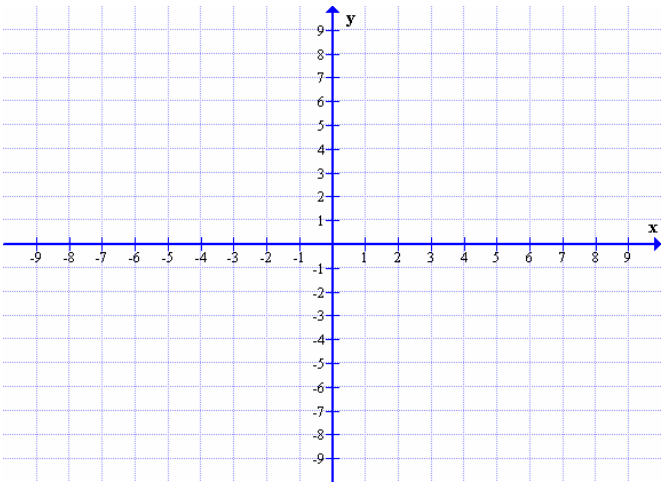
$x+6>9x+30$



0

4. If a 4-ounce piece of cake has 160 calories, how many calories does a 6-ounce piece of that cake have?

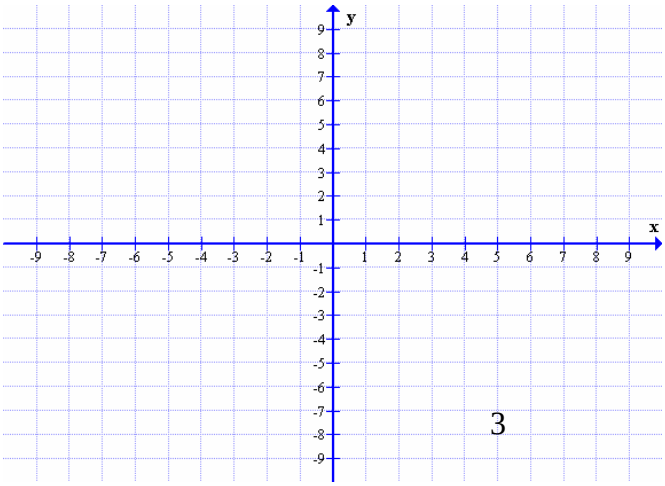
5. Plot each ordered pair on the same axes
A(5,3) B(0,6) C(5, ½) D(-4,3) E (-6, -1) F(-2, 0)



6. Find the missing coordinate in the following solutions to $3x-2y=8$
(4, ?) (0,?)

7. Graph
$y=-\frac{1}{2}x+4$

$-2x+3y=6$

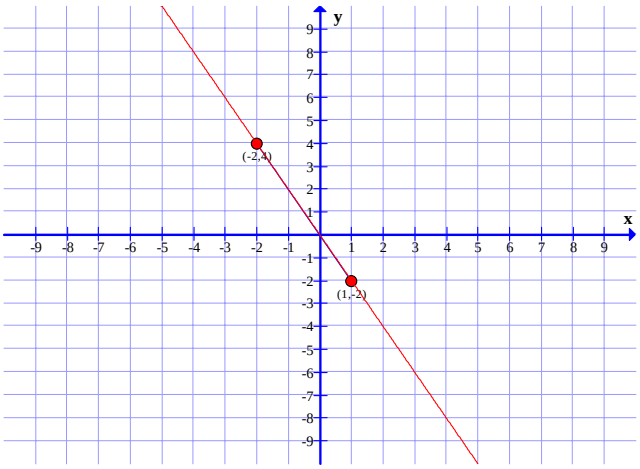


8. Find the slope of the line that passes through the given points: (-3,-4) and (-2, 5)

9. What is the slope of a horizontal line?

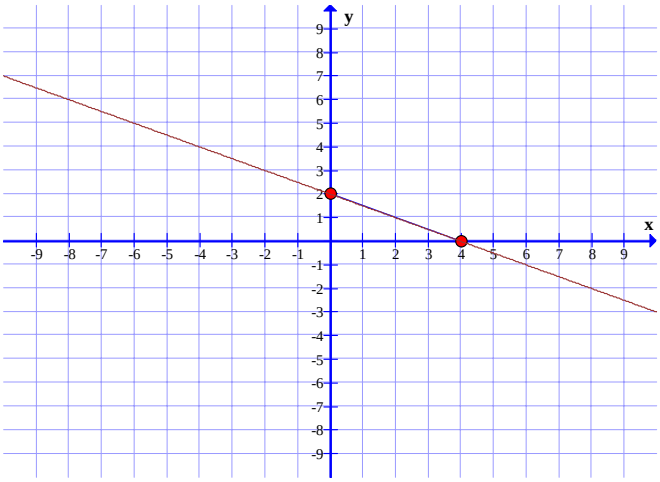
What is the slope of a vertical line?

10. What is the slope of the line in the graph to the right?



11. Determine the slope and y-intercept of the graph of the equation: $6x + 7y = 14$

12. Write the equation of the line in the graph to the right?



13. Determine whether each pair of lines is parallel, perpendicular or neither

$2x - 3y = 9$ $\qquad$ $3x + 2y = 6$

14. Find the equation of each line with the given properties

Slope = $-\frac{2}{3}$ through Point (3, 2)

Through points (-2,3) and (0,4)

15. Determine which, if any, of the ordered pairs satisfy each system of equations

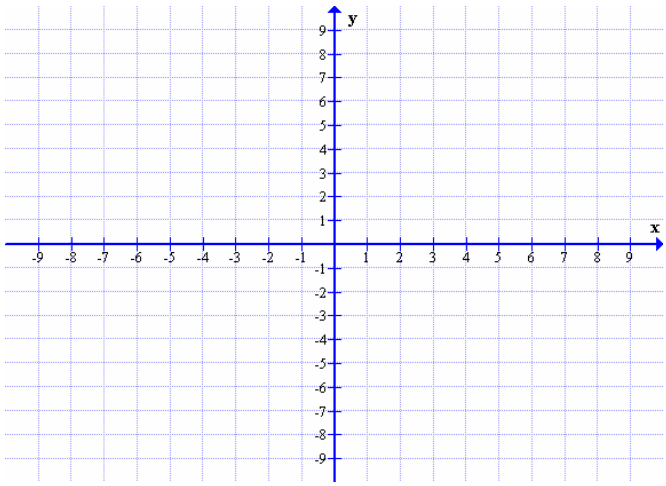
$y = 4x - 2$

$2x + 3y = 8$

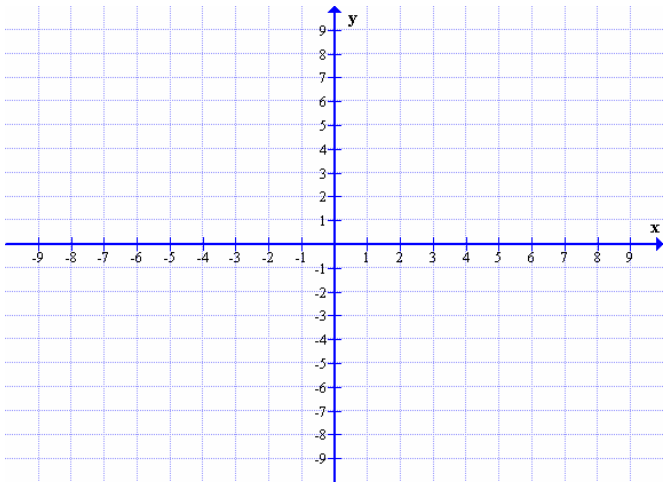
(0,2) (-2,4) (1,2)

16. Determine the solution to each system of equations graphically

$y = x - 4$ $y = 2x - 7$



$y = x - 3$ $\qquad\qquad$ $2x - 2y = 6$



17. Find the solution to each system of equations by substitution

$x = 3y - 9$

$x + 2y = 1$

$2x - 3y = 8$

$6x + 5y = 10$

18. Find the solution to each system of equations by the addition method

$x + 2y = -3$

$2x - 2y = 6$

$2x + y = 9$

$-4x - 2y = 4$

19. Find the solution to each system of equations by using Cramer's Rule

$$x + y = 12$$
$$2x + y = 5$$

20. Application

Maura Hakala invested a total of $16,000. Part of the money was placed in a savings account paying 4% simple interest. The rest was placed in a savings account paying 6% simple interest. If the total interest received for the year was $760, how much had she invested in each account?

A chemist has a 30% acid solution and a 50% acid solution. How much of each must be mixed to get 6 liters of a 40% acid solution?

21. Simplify

$x^5 \square x^2$ $\qquad$ $\dfrac{x^4}{x}$ $\qquad$ $(5x)^2$

$(2x^2)^4$ $\qquad$ $\left(\dfrac{9x^2y}{3xy}\right)^2$ $\qquad$ 5^{-2}

$y^5 \square y^{-8}$ $\qquad$ $\left(4x^{-3}y\right)^{-3}$ $\qquad$ $\left(4x^{-2}y^3\right)^{-2}$

$$\frac{4x^8y^{-2}}{8x^7y^3}$$

22. Express each number in scientific notation

1,720,000 0.00763

23. Express each number without exponents

3.14×10^{-5} 9.7×10^{5}

24. Perform the indicated operation and write your answer without exponents

$\left(4.2\times10^{-3}\right)\left(3.0\times10^{5}\right)$

25. Indicate whether each expression is a polynomial. If the polynomial has a specific name, give that name. If the polynomial is not written in descending order, rewrite it in descending order. State the degree of the polynomial

x^2-4+3x $x-4x^2$

26. Perform each indicated operation

$(x-5)+(2x+4)$ $(-4x+8)-(-2x+6)$

$-3x(5x+4)$

$(x+4)(x-5)$

$(-2x+6)^2$

$(r+5)(r-5)$

$\dfrac{10x+12}{2}$

$\dfrac{5x^2-6x+15}{3x}$

27. Use long division to simplify

$$\frac{x^2+x-12}{x-3}$$

28. Find the greatest common factor for each set of terms

$20x^2y^3, 25x^3y^4, 10x^5y^2z$

29. Factor each expression. If an expression is prime, so state.

$55p^3-20p^2$

$24x^2-13y^2+6xy$

$5x(x+2)-2(x+2)$

30. Factor by “grouping” method

$x^2 + 6x + 2x + 12$

$5x^2 - xy + 20xy - 4y^2$

31. Factor completely. If an expression cannot be factored, so state.

$x^2 - x + 6$

$b^2 + b - 20$

$x^2 + 11x - 24$

$5m^2 - 14m + 8$

$2t^2 + 14t + 9$

$12x^2 + 2x - 4$

$16a^2 - 22ab - 3b$

$x^2 - 100$

$x^3 + 8$

32. Solve

$x^2 - 6x + 8 = 0$

$3p^2 + 6p = 45$