

Math 31 Cohort Students

Let's Get Ready for Exam #2!

Practice Problems from Chapters 3 and 4!

#1) In Australia, there are 400 cars for every 1,000 people. First express the ratio of cars to people as a fraction reduced to lowest terms. Then rewrite the ratio using the reduced fraction and a colon.

#2) Solve the proportion: $\frac{3}{x} = \frac{6}{30}$

#3) Solve the proportion: $\frac{x}{9} = \frac{x-2}{6}$

#4) A 15-ounce can of pineapple juice sells for \$1.80. At the same rate, what would a 12-ounce can sell for?

#5) The sales tax on a car that sold for \$15,000 is \$330 more than the sales tax on a car that sold \$11,000. Find the sales tax on the car that sold for \$11,000.

#6) How many ounces of a 50% alcohol solution must be mixed with 80 ounces of a 20% alcohol solution to make a 40% alcohol solution?

#7) A chemist needs to mix a 50% acid solution with an 80% acid solution to obtain 100 milliliters of a 68% acid solution. How many milliliters of each of the solutions must be used?

#8) You invest a total of \$14,000 in two accounts paying 3% and 6% annual interest, respectively. How much should be invested at each rate if the total interest earned for the first year is to be \$735?

#9) You invest \$3,000 in two accounts paying 10% and 5% annual interest. At the end of the year, the accounts earn the same amount of interest. How much was invested at each rate?

#10) Two buses, 385 miles apart, are traveling toward each other on the same road. One is averaging 60 miles per hour and the other averages 50 miles per hour. After how long will they meet?

#11) To reach your vacation destination, you travel part of the distance by plane averaging 450 miles per hour and the remainder of the distance by car averaging 50 miles per hour. You spend 2 hours less traveling by car than by plane. If the entire trip is 1,900 miles, how long do you travel by plane and how long do you travel by car?

#12) Find the area of a circle with a diameter of 12 inches in terms of π . Then round the answer to the nearest whole number using 3.14 as an approximation for π .

#13) A triangular kite has a base of 15 inches and a height of 16 inches. Find the area of the kite.

#14) A can of green beans has a diameter of 3 inches and a height of 4.5 inches. Find the volume of the can in terms of π . Then round your answer to the nearest whole number using 3.14 as an approximation for π .

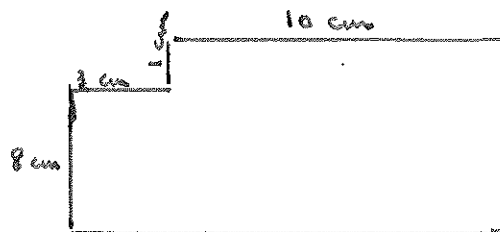
#15) A cylindrical fish tank has a radius of 2 feet and a height of 4 feet. How many fish can be put in the tank if each fish needs 2.5 cubic feet of water?

#16) Find the measure of each angle of a triangle if the second angle is 10° more than twice the measure of the first angle, and the third angle is 20° more than twice the measure of the first angle.

#17) How many degrees are there in an angle that measures 12° less than the measure of its supplement?

#18) Find the measure of an angle whose supplement is 52° more than twice that of its complement.

#19) Find the perimeter and area of the following figure.



#20) Determine if the ordered pair $(-2, -1)$ is a solution for $2x - y = -3$.

#21) Graph the equation $y = \frac{1}{2}x + 4$ using a table of values.

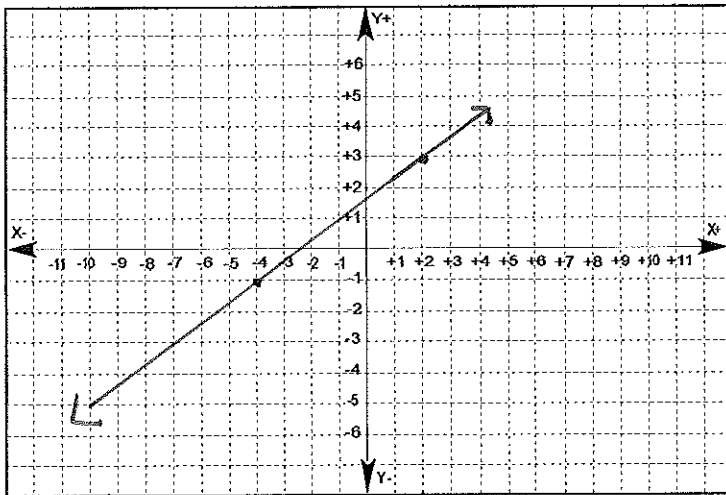
#22) Graph $y = -3$ with or without using a table of values.

#23) Graph $x = 2$ with or without using a table of values.

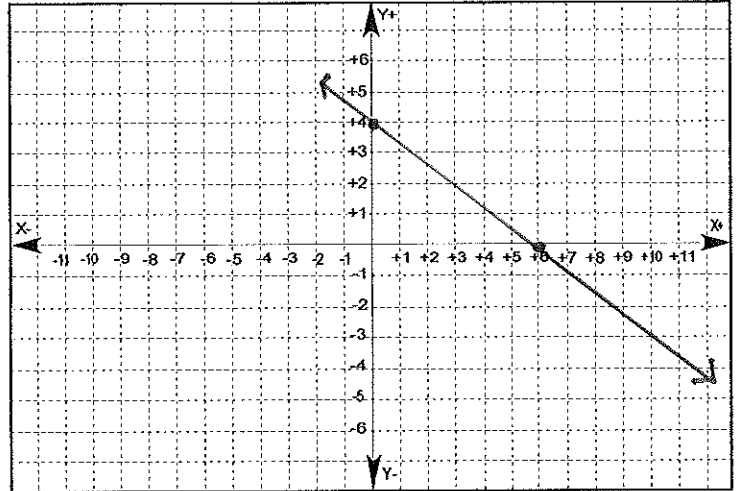
#24) Determine the x - and y - intercepts for the graph of the line $-27x + 9y = 54$.

#25) Graph the equation $4x + 2y = 8$ by finding the x - and y -intercepts. Label which point is the x -intercept and which point is the y -intercept.

#26) Find the slope of the line using the following graph.



#27) Find the slope of the line using the following graph.



#28) Calculate the slope of the line passing through the points $(7, -1)$ and $(3, -2)$.

#29) Calculate the slope of the line passing through the points $(3, -4)$ and $(2, -4)$.

#30) Given the equation, $2x - 3y = 15$, find the slope of a line perpendicular to the line represented by the equation.

#31) Rewrite $-15x - 45y = -135$ in Slope-Intercept Form and identify the slope and the coordinates of the y -intercept.

#32) Graph $y = \frac{2}{5}x + 3$ by finding the y -intercept and using the slope to determine a second point on the line.

#33) Graph the equation $y = \frac{-3}{4}x + 5$.

#34) Find the equation of the line which passes through the point $(3, 4)$ and has a slope of -2 . Write the answer in all three forms: Point-Slope Form, Slope-Intercept Form, and Standard Form.

#35) Find the equation of the line which passes through the point $(-2, -3)$ and is parallel to the line $2x + 3y = 10$. Write the answer in all three forms: Point-Slope Form, Slope-Intercept Form, and Standard Form.

#36) Find the equation of the line, in all three forms, Point-Slope Form, Slope-Intercept Form, and Standard Form, which passes through the points $(-2, -5)$ and $(-5, -11)$.

#37) Graph $-6x + 16y \leq -48$

#38) Graph $y > -4x + 3$.

#39) Graph $x \leq -2$.

#40) Graph $y > -2$.