PreCalculus Prerequisite Topics Pre-Quiz

Use this pre-quiz to see how many topics you already know and don't need to review. Do your work on another paper and when you are finished, download the checklist/answer key document to check your answers and list the topics you should review.

#1) Simplify as fully as possible: $\dfrac{4x^2+12x}{12x}$

#2) Simplify the expression. If the answer contains exponents, make sure they are positive.

$$\left(\frac{-12x^{-9}y^{-1}}{4x^{-3}y^{-4}z^{0}}\right)^{-2}$$

#3) Simplify as fully as possible: $2\sqrt{18}+3\sqrt{48}-5\sqrt{8}$

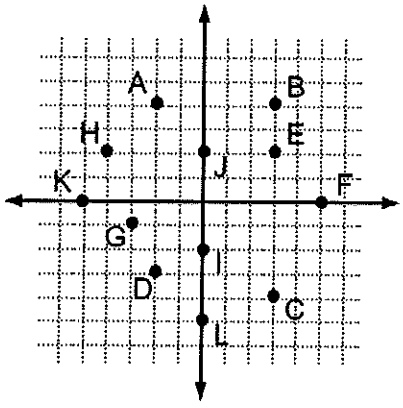
#4) Simplify as fully as possible: $\sqrt{18a^7b^9}$

#5) Simplify as fully as possible: $\dfrac{3}{2+\sqrt{5}}$

#6) Simplify as fully as possible:

$$\left(\frac{\left(\sqrt[3]{125}\right)^2}{4\left(16^{\frac{1}{2}}\right)}\right)^{\frac{-1}{2}}$$

#7) In the graph at right, what are the coordinates of point C?



#8) If $\frac{x}{y} = -1$, which of the following conditions could also be true?

(multiple answers may be correct)

a) $x > 0,\ y < 0$

b) $x > 0,\ y > 0$

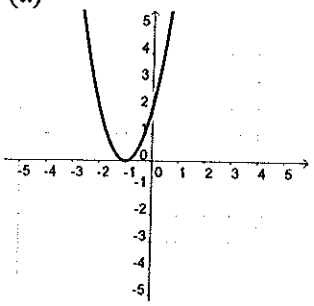
c) $x = 0,\ y = 0$

d) $x < 0,\ y > 0$

e) $x < 0,\ y < 0$

#9) Which is the graph of $y = -2(x+1)^2$

(a)



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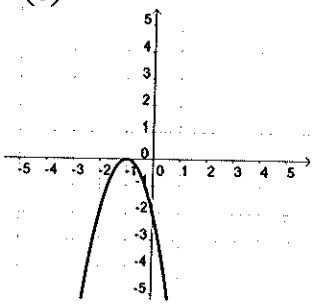

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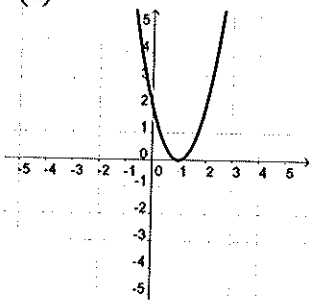

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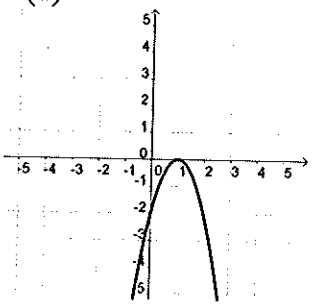
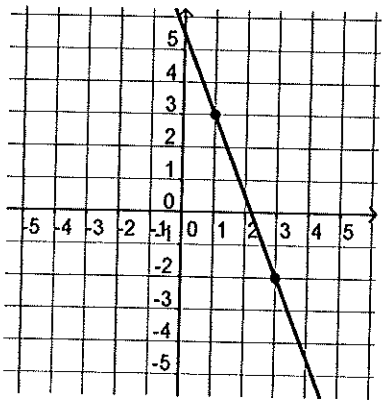


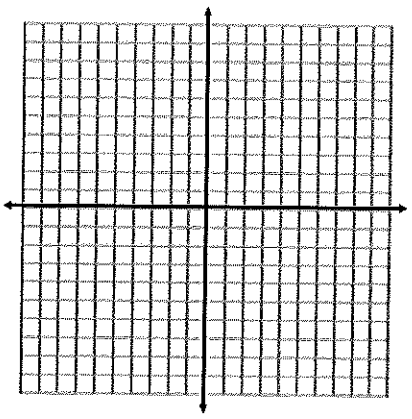
#10) What is the equation of a circle with center at $(2, -7)$ and a radius of 2?

#11) Find the x-intercept and y-intercept, and graph the line using these intercepts: $8x + 2y - 2 = 0$

#12) What is the slope of this line?



#13) Find the slope and y-intercept, and graph the line using this information: $6x+3y-18=0$



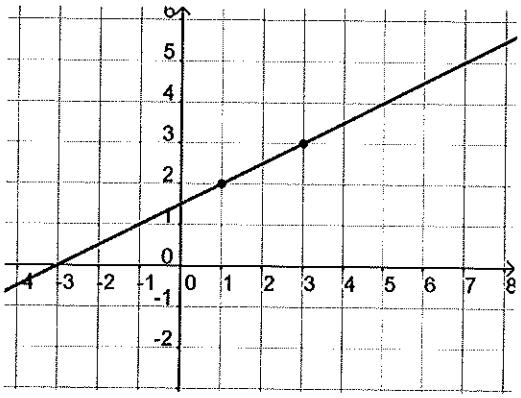
#14)

a) Write a point-slope form equation for the line in this graph. Then convert the equation to:

b) Slope-intercept form

c) Standard form

d) General form



#15) State whether these lines are parallel, perpendicular, intersecting, or coinciding:

$$3x-4y=-12$$
$$8x+6y=-24$$

#16) Find the slope of the line passing through the points $(2,-4)$ *and* $(-1,5)$

#17) Find the distance between points $(1,-3)$ *and* $(4,2)$

#18) Find the midpoint of the line segment with endpoints $(-2,5)$ *and* $(5,-1)$

#19) Write the equation of a line in standard form containing the point $(3,-2)$ and <u>perpendicular</u> to the line $x+3y=12$

#20) Factor this expression completely: $4x^4+6x^3+2x^2$

#21) Factor this expression completely: $3x^4y^2-12dxy$

#22) Factor this expression completely: $x^2 - 8x + 15$

#23) Factor this expression completely: $10b^2 - 13b - 3$

#24) Factor this expression completely: $x^2 - 100y^4$

#25) Factor this expression completely: $5xy + 10y - 6x - 12$

#26) Complete the square and write as a binomial squared:

$$16x^2 - 16x + \_\_\_ = (\_\_\_\_\_)^2$$

#27) Evaluate this expression if $x = -3$: $-x^2 + x - 1$

#28) Is $x = 2$ a solution to the equation $2x + 3 = 5$?

#29) Which of these ordered pairs are solutions of $y = 3x - 4$?

a) $(0, -4)$ b) $(1, -5)$ c) $(2, 2)$ d) $(-1, 0)$

#30) Solve: $2x^2 - 30 = -17x$

#31) Solve: $x^2 = 9x$

#32) Solve: $3(4b + 1)^2 = 24$

#33) Solve by completing the square and taking square roots: $x^2 + 14x + 47 = 0$

#34) Solve: $\dfrac{8}{2x - 3} = \dfrac{6}{3x}$

#35) Solve: $\dfrac{8}{x^2 + 4x} + \dfrac{2}{x + 4} = 1$

#36) Solve: $\sqrt{2x-1}+2\sqrt{x}=3$

#37) Solve: $3|2x-2|+5=17$

#38) Solve the system: $\begin{cases} 2x+3y=16 \\ 6x-y=8 \end{cases}$

#39) Solve the system: $\begin{cases} y=2x^2-1 \\ x+y=2 \end{cases}$