

Honors Algebra 3-4 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: $\frac{4x^2 + 12x}{12x}$

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

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

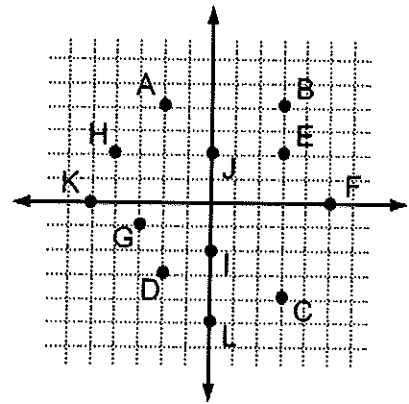
#3) Simplify as fully as possible: $2\sqrt{18} + 3\sqrt{48} - 5\sqrt{8}$

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

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

#6) Simplify as fully as possible: $\left(\frac{(\sqrt[3]{125})^2}{4\left(16^{\frac{1}{2}}\right)}\right)^{-\frac{1}{2}}$

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

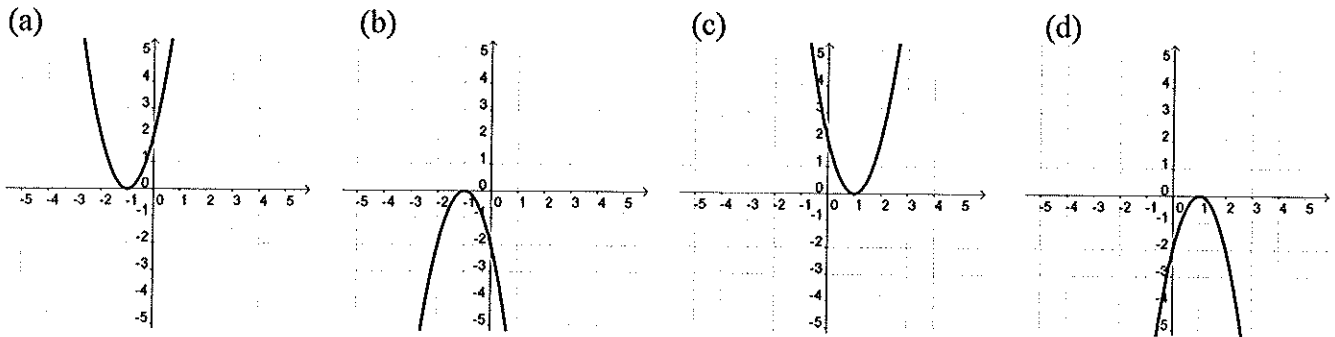


#8) If $\frac{x}{y} = -1$, which of the following conditions could also be true?

(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) $x < 0, y < 0$

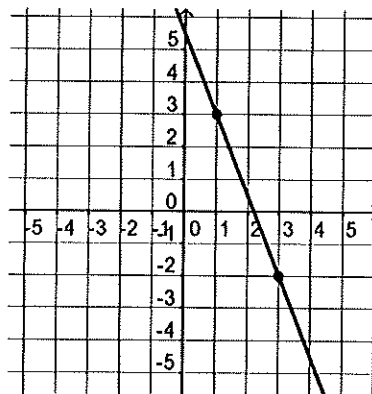
#9) Which is the graph of $y = -2(x+1)^2$



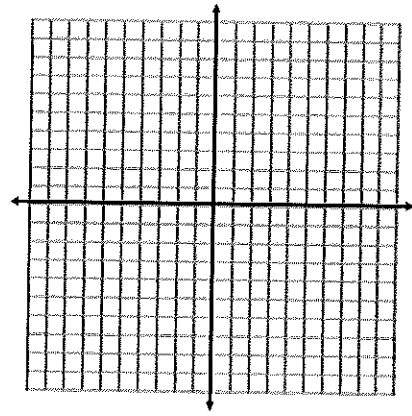
#10) What is the equation of a circle with center at $(2, -7)$ and a radius of 2?

#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?

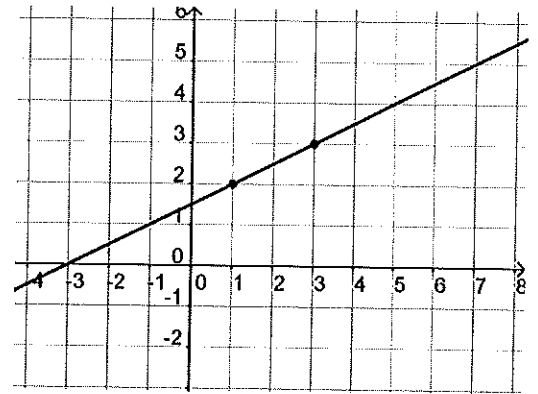


#13) Find the slope and y-intercept, and graph the line using this information: $6x + 3y - 18 = 0$



#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 perpendicular 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:

$$16x^2 - 16x + \underline{\quad} = (\underline{\quad})^2$$

#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: $\frac{8}{2x-3} = \frac{6}{3x}$

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

#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:
$$\begin{cases} y = 2x^2 - 1 \\ x + y = 2 \end{cases}$$