

A. Complete the indicated operations. You MUST show the process/steps you use.

Express answers in \*\*\* simplified \*\*\* exact \*\*\* form, with no negative exponents.

$2\sqrt{27} - \sqrt{75} \times 4\sqrt{12}$	$(5x^2y^{-4})^{-3}$
$\frac{4}{x-4} - \frac{8x}{x^2-16}$	$3 + 7^2 - (2-4)^2 + \frac{9}{5} \div \frac{7}{10}$

B. Expand and simplify.

$2y(3x+y)(x-2y) =$	$(3 - \sqrt{5})^2$
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C. Factor:

$16x^2y^2 - 36x^2$	$2xy - 6x + 5y - 15$
$9x^3 + 12x^2 - 4x$	$15x + 27x^2 - 6x^3$

D. Solve:

$4(5x - 6) - x = 7 - 3x$	$3x^2 - 8x + 5 = 0$
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$$x - \frac{7}{x+2} = 4$$

$$6 - \sqrt{x+4} = 0$$

E. Solve the inequalities.

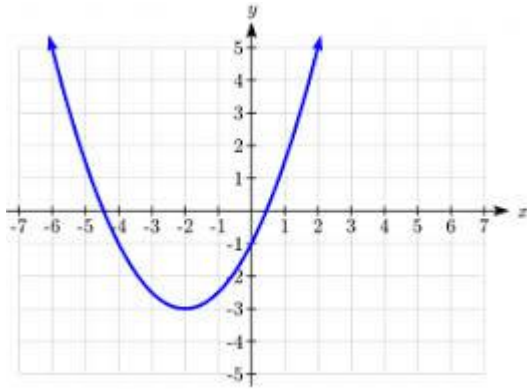
a)  $5x + 3(x + 1) > 4x - 9$

b)  $3x^2 + 11x - 20 < 0$

F. Find the equation of the line which passes through (3, 6)

and is perpendicular to  $y = 3x - 5$ .

G. Analyze the parabola.



List the following data for the parabola:

(@1)

a) the \*\*equation of the axis of symmetry \_\_\_\_\_

b) the y-intercept \_\_\_\_\_

c) the minimum value of this function \_\_\_\_\_

d) the domain (in interval notation) \_\_\_\_\_

e) the range (in set notation) \_\_\_\_\_

f) the equation of the parabola, in the format  $y = a(x - h)^2 + k$

g) the equation in the format  $ax^2 + by + c = 0$  \*\*Be sure to have a positive leading coefficient, and all coefficients should be integers.

h) Explain why this parabola is the graph of a function.