1) What needs to be added to $x^2 + 9x +$_____ to complete the square?

2) Solve each equation:

a) $5x^2 + 10x = 30$ b) $3m(m-2) = -m+1$
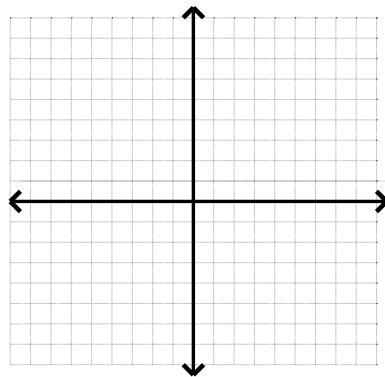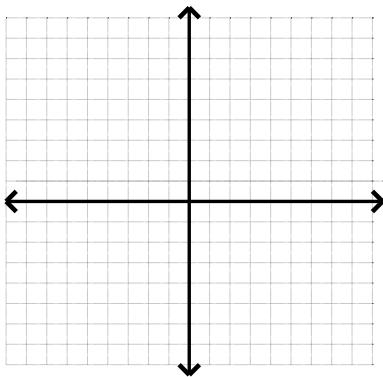
c) $2x^2 + 4x + 5 = 0$ d) $x^4 + 5x^2 - 36 = 0$

3) Sketch the parabola; state the vertex and axis of symmetry:

a) $f(x) = (x-3)^2 + 1$ b) $y = -2x^2 - 4x + 3$

4) ♥ In a rectangle, the length is 1 meter less than twice the width. If the area is 100 sq. meters, approximate the dimensions to one decimal place.

5) A 26-foot ladder is leaning against a building. How far is the ladder from the base of the building if it reaches a height of 22 feet up the building? Include a sketch. (If necessary, round decimals to 2 places)

6) Solve the inequality: sketch the solution on a number line:

a) $2x^2 + 5x < -3$ b) $|3x - 4| \geq 8$

Answers:

1) 81/4   2a) $-1 \pm \sqrt{7}$ 2b) $m = \dfrac{5 \pm \sqrt{37}}{6}$ 2c) $x = -1 \pm \dfrac{\sqrt{6}i}{2}$ 2d) $x = \pm 3i, \pm 2$ 3a) graph is a

parabola vertex at (3,1) facing up   3b) parabola faces down, vertex at (-1,5)   4) width 7.3m, length 13.6 m

5) 13.86 feet from the base   6a) (-3/2,-1)   6b) $(-\infty, -4/3] \cup [4, \infty)$