

## Algebra I Homework #22

- 1) Factor:  $36ax^3 - 3ax^2 - 18ax$
- 2) Solve:  $\frac{-7}{6x^2 - 23x + 20} = \frac{3}{3x - 4} + \frac{2}{2x - 5}$
- 3) Simplify:  $12\sqrt{147x^3} - 8x\sqrt{125x} + 6\sqrt{363x^3}$
- 4) Solve:  $13am + 17yh = 5aw$  for the letter a
- 5) Suppose that the flight path of a rocket (in miles) is given by the equation  $y = -x^2 + 16x - 60$ . Determine how many miles from the control tower the rocket was launched, how many miles away from the control tower it landed, how far the rocket was from the control tower at its maximum height, and how high the rocket went (include a graph with your work!).
- 6) Graph  $y = x^2 - 2x - 3$  and find both the vertex and x-intercepts.
- 7) Factor:  $2x^4y - 16xy$
- 8) Solve:  $2x^2 - 7x - 13 = -10$
- 9) Graph  $y = -x^2 - 8x$  and find both the vertex and x-intercepts.
- 10) Factor:  $16x^3 + 54y^3$
- 11) Solve:  $x^2 - 14 = -6x$
- 12) Graph  $y = 3x^2 - 18x + 15$  and find both the vertex and x-intercepts.
- 13) Factor:  $5x^5 + 625x^2$
- 14) Solve:  $9x^2 = 4 + 7x$
- 15) Graph  $y = 2x^2 - 8$  and find both the vertex and x-intercepts.
- 16) Factor:  $250x^4 - 128x$
- 17) Solve:  $8x^2 + 4x - 16 = -x^2$
- 18) Graph  $y = x^2 - 6x + 9$  and find both the vertex and x-intercepts.
- 19) Factor:  $x^3 + 1$
- 20) Solve:  $8x^2 + 7x - 15 = -7$