Name _____   Date _____
Mr. Schlansky   Algebra II

# *Quadratics/Complex Numbers Review Sheet*

1. Given $i$ is the imaginary unit, $(2-yi)^2$ in simplest form is
1) $y^2 - 4yi + 4$
2) $-y^2 - 4yi + 4$
3) $-y^2 + 4$
4) $y^2 + 4$

2. The expression $(3-7i)^2$ is equivalent to
1) $-40 + 0i$
2) $-40 - 42i$
3) $58 + 0i$
4) $58 - 42i$

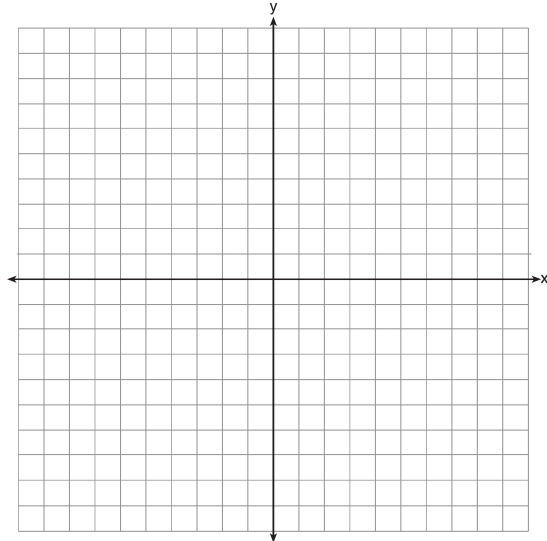3. Solve for x and express your answer in simplest radical form: $x^2 - 6x = 3$

4. Solve for x and express your answer in simplest $a+bi$ form: $4x^2 + 2x = -1$

5. Solve for all values of x: $4x^3 - 10x^2 + 2x = 0$

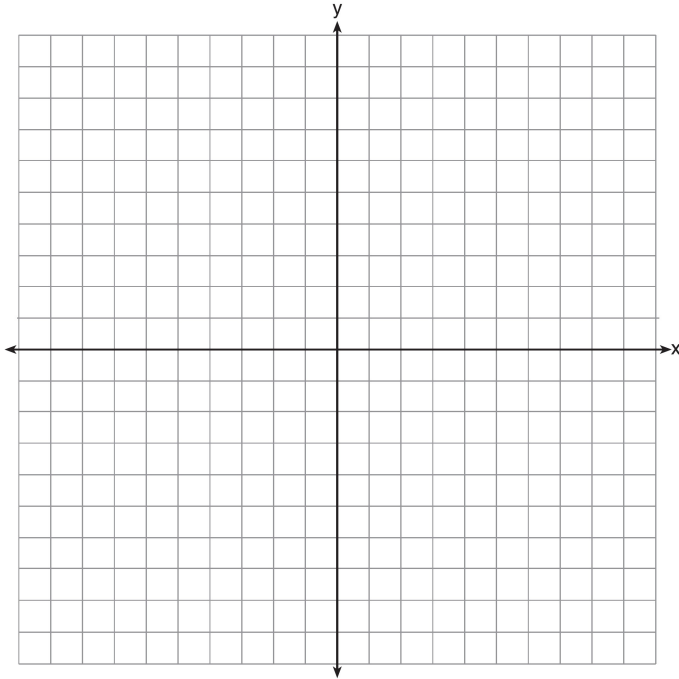6. Solve for all values of x: $x^3 + 4x^2 + 9x = -36$

7. Which equation represents a parabola with a focus of $(-2, 5)$ and a directrix of $y = 9$?

1) $y = \dfrac{1}{8}(x+2)^2 + 7$    3) $y = \dfrac{1}{8}(x-2)^2 - 7$

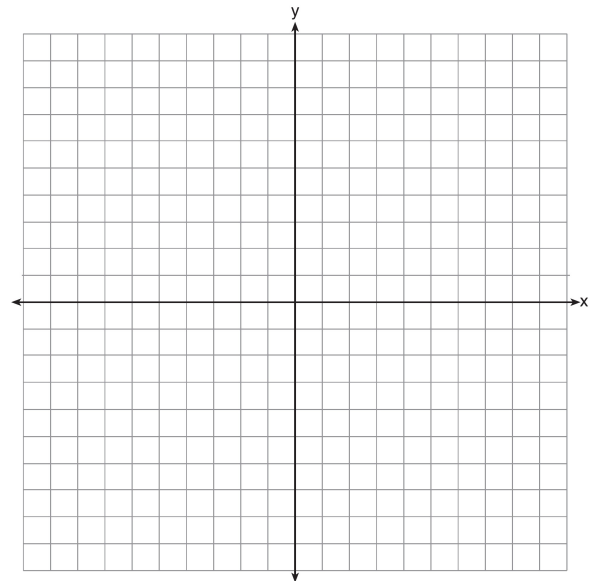2) $y = -\dfrac{1}{8}(x+2)^2 + 7$    4) $y = -\dfrac{1}{8}(x-2)^2 - 7$

8. A parabola has its focus at $(1, 2)$ and its directrix is $y = -2$. The equation of this parabola could be

1) $y = 8(x + 1)^2$     3) $y = 8(x - 1)^2$

2) $y = \frac{1}{8}(x + 1)^2$     4) $y = \frac{1}{8}(x - 1)^2$
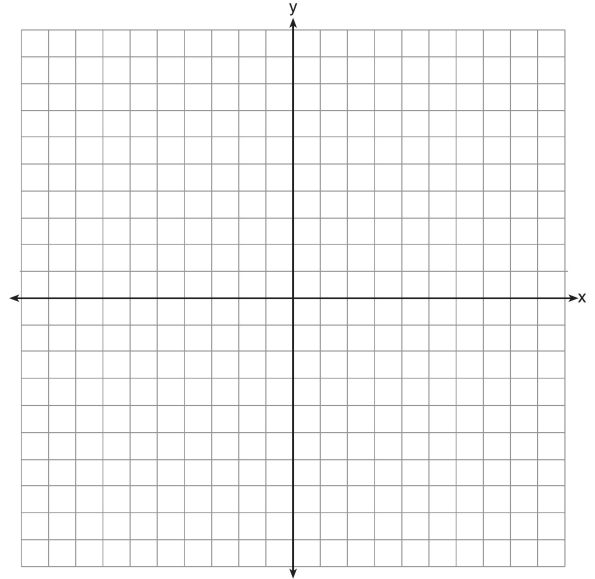
9. The parabola $y = -\frac{1}{4}(x + 3)^2 - 6$ has a directrix at $y = -5$. What is the focus?

10. The parabola $y = \dfrac{1}{8}(x-2)^2 + 3$ has a focus of $(2,1)$.

What is the equation of the directrix?

**Spiral Review**
**To determine if $x - a$ is a factor:**
**Find the remainder!**
**To find the remainder, use remainder theorem.**
If $p(a) = 0$, it is a factor.
If $p(a) \neq 0$, it is not a factor.

11. Which binomial is *not* a factor of the expression $x^3 - 6x^2 - 49x - 66$ ?
1)  $x - 11$           3)  $x + 6$
2)  $x + 2$           4)  $x + 3$

12. Which binomial is a factor of the expression $x^3 - 7x - 6$ ?
1)  $x + 3$           3)  $x - 2$
2)  $x - 1$           4)  $x + 2$