

Classwork #4 Complement on Quadratics

Factor each if possible:

- 1) $x^2 - 4x - 5$ $(x-5)(x+1)$ 2) $2x^2 - 15x + 7$ $(2x-1)(x-7)$
 3) $x^2 - 49$ $(x-7)(x+7)$ 4) $x^2 + 9$ Not factorable
 5) $-2x^2 - 6x$ $-2x(x+3)$ 6) $x^2 - 6x + 7$ Not factorable

Solve by any means

- 7) $x^2 = 6x$ $x^2 - 6x = 0$ 8) $x^2 - 4x - 12 = 0$ 9) $x^2 - 8x - 5 = 0$
 $x(x-6) = 0$ $(x-6)(x+2) = 0$ $\frac{8 \pm \sqrt{64+20}}{2} = \frac{8 \pm 2\sqrt{21}}{2} = 4 \pm \sqrt{21}$
 $x = 0, 6$ $x = 6, -2$
 10) $x^2 = 25$ 11) $x^2 - 4x + 5 = 0$ 12) $x(x-3) = 4$
 $\sqrt{x^2} = \pm \sqrt{25}$ $\frac{4 \pm \sqrt{-4}}{2} = \frac{4 \pm 2i}{2} = 2 \pm i$ $x^2 - 3x - 4 = 0$
 $x = \pm 5$ $(x-4)(x+1) = 0$
 $x = 4, -1$

13. Without solving, determine the number and type of solutions for $x^2 + 2x + 5 = 0$ (I will look for the value of the determinant): $4 - 20 = -16 \therefore 2$ imaginary sols

For the following find the vertex using 3 different methods: $f(x) = x^2 - 8x + 7$

- 14) Method 1: $h: \frac{-(-8)}{2} = 4$ $(4, -9)$ 15) Method 2: $(x-7)(x-1)$ 15) Method 3: $(x^2 - 8x + 16) - 16 + 7$
 $k: 16 - 32 + 7 = -9$ $h: \frac{7+1}{2} = 4$ $(x-4)^2 - 9$
 $k: (-3)(3) = -9$ $(4, -9)$

Graph each. Use the method of graphing appropriate for the given form of the quadratic.

- 16) $y = -x^2 - 4x + 2$ 17) $y = 2(x+2)^2 - 5$ 18) $y = 2(x+3)(x-1)$ x -int: $-3, 1$
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