Name: _____ Block: _____

Quiz: Solving Quadratic Equations

Solve by GRAPHING

1) $2x^2 + 2x - 4 = 0$

$x =$ _____

Solve by FACTORING

2) $x^2 + 4x - 21 = 0$

$x =$ _____

Simplify each number or expression

3) $\sqrt{-81}$

4) $\sqrt{-48}$

5) i^5

6) i^{15}

7) $(-6 + 7i) + (3 + 3i)$

8) $(-5 + 3i) - (-8 + 2i)$

9) $(2 - i)(-3 + 6i)$

10) $(4 - i)^2$

Ch4 Day 11 → Completing the square (A)

<u>Warm up</u>: Factor the perfect square trinomials

① $x^2 - 6x + 9$

② $x^2 + 4x + 4$

③ $x^2 + 8x + ____$

What # makes the trinomial a perfect square?

④ Solve: $4x^2 + 10 = 46$

<u>Examples</u>: Solving by finding square roots

① $3x^2 - 5 = 25$

② $7x^2 - 10 = 25$

③ $2x^2 + 9 = 13$

<u>Examples</u>: Completing the square $\left(\frac{b}{2}\right)^2$

① $x^2 - 10x + ____$

② $x^2 + 6x + ____$

③ $x^2 - 8x + ____$

Homework: pg 237 #'s 1-17 all skip #'s 9-11

Name: _____ Block: _____

Quiz: Solving Quadratic Equations

Solve by GRAPHING (use calculator)

1) $\overset{a}{2}x^2 + \overset{b}{2}x - \overset{c}{4} = 0$

$2(x^2 + x - 2) = 0$

$2(x+2)(x-1) = 0$

$x =$ $-2, 1$

Solve by FACTORING

2) $x^2 + 4x - 21 = 0$

$(x+7)(x-3) = 0$

$x+7=0 \quad x-3=0$

$x =$ $-7, 3$

Simplify each number or expression

3) $\sqrt{-81}$

$= 9i$

4) $\sqrt{-48} = i\sqrt{16 \cdot 3}$

$= 4i\sqrt{3}$

5) $i^5 = i \cdot (i^2)^2$

$= i(-1)^2$

$= i$

6) $i^{15} = i \cdot (i^2)^7$

$= i \cdot (-1)^7$

$= i \cdot (-1)$

$= -i$

7) $(-6 + 7i) + (3 + 3i)$

$-6 + 7i + 3 + 3i$

$-3 + 10i$

8) $(-5 + 3i) - (-8 + 2i)$

$-5 + 3i + 8 - 2i$

$3 + i$

9) $(2 - i)(-3 + 6i)$

$-6 + 8i + 3i - 6i^2$

$-6 + 11i - 6(-1)$

$-6 + 11i + 6$

$11i$

10) $(4 - i)^2 = (4-i)(4-i)$

$= 16 - 4i - 4i + i^2$

$= 16 - 8i + (-1)^2$

$= 16 - 8i + 1$

$= 17 - 8i$

Ch4 Day 11 → Completing the Square (A)

Warm up: Factor the perfect square trinomials

① $x^2 - 6x + 9$

$(x-3)(x-3)$

② $x^2 + 4x + 4$

$(x+2)(x+2)$

③ $x^2 + 8x + \underline{16}$

$(x+4)(x+4)$

What # makes the trinomial a perfect square?

$\left(\frac{b}{2}\right)^2 = \left(\frac{8}{2}\right)^2 = (4)^2 = 16$

④ Solve: $4x^2 + 10 = 46$

$-10 \quad -10$

$\frac{4x^2}{4} = \frac{36}{4}$

$\sqrt{x^2} = \sqrt{9}$

$x = \pm 3$

Examples: Solving by finding square roots

① $3x^2 - 5 = 25$

$+5 \quad +5$

$\frac{3x^2}{3} = \frac{30}{3}$

$\sqrt{x^2} = \sqrt{10}$

$x = \pm\sqrt{10}$

② $7x^2 - 10 = 25$

$+10 \quad +10$

$\frac{7x^2}{7} = \frac{35}{7}$

$\sqrt{x^2} = \sqrt{5}$

$x = \pm\sqrt{5}$

③ $2x^2 + 9 = 13$

$-9 \quad -9$

$\frac{2x^2}{2} = \frac{4}{2}$

$\sqrt{x^2} = \sqrt{2}$

$x = \pm\sqrt{2}$

Examples: Completing the square $\left(\frac{b}{2}\right)^2$

① $x^2 - 10x + \underline{25}$

$\left(\frac{-10}{2}\right)^2 = (-5)^2 = 25$

$x^2 - 10x + 25$

$(x-5)(x-5)$ ✓

② $x^2 + 6x + \underline{9}$

$\left(\frac{6}{2}\right)^2 = (3)^2 = 9$

$x^2 + 6x + 9$

$(x+3)(x+3)$ ✓

③ $x^2 - 8x + \underline{16}$

$\left(\frac{-8}{2}\right)^2 = (-4)^2 = 16$

$x^2 - 8x + 16$

$(x-4)(x-4)$ ✓

Homework: pg 237 #'s 1-17 all, skip #9-11

Ch4 Day 11 Homework pg 237 #'s 1-17 all (skip 9-11)

solve each equation by finding square roots.

① $\frac{2x^2}{2} = \frac{72}{2}$

$\sqrt{x^2} = \sqrt{36}$

$x = \pm 6$

② $\frac{6x^2}{6} = \frac{54}{6}$

$\sqrt{x^2} = \sqrt{9}$

$x = \pm 3$

Complete the square. $\left(\frac{b}{2}\right)^2$

③ $x^2 + 2x + \square$

$\left(\frac{2}{2}\right)^2 = (1)^2 = 1$

$x^2 + 2x + 1$

$(x+1)^2$

④ $x^2 + 10x + \square$

$\left(\frac{10}{2}\right)^2 = (5)^2 = 25$

$x^2 + 10x + 25$

$(x+5)^2$

⑤ $x^2 - 4x + \square$

$\left(\frac{-4}{2}\right)^2 = (-2)^2 = 4$

$x^2 - 4x + 4$

$(x-2)^2$

⑥ $x^2 + 12x + \square$

$\left(\frac{12}{2}\right)^2 = (6)^2 = 36$

$x^2 + 12x + 36$

$(x+6)^2$

⑦ $x^2 + 100x + \square$

$\left(\frac{100}{2}\right)^2 = (50)^2 = 2500$

$x^2 + 100x + 2500$

$(x+50)^2$

$\begin{array}{r} 50 \\ 50 \\ \hline 2500 \end{array}$

⑧ $x^2 - 32x + \square$

$\left(\frac{-32}{2}\right)^2 = (-16)^2 = 256$

$x^2 - 32x + 256$

$(x-16)^2$

$\begin{array}{r} 16 \\ 16 \\ \hline 96 \\ 160 \\ \hline 256 \end{array}$

solve each equation by finding square roots.

⑫ $\frac{5x^2}{5} = \frac{80}{5}$

$\sqrt{x^2} = \sqrt{16}$

$x = \pm 4$

⑬ $x^2 - 4 = 0$

$+4 \quad +4$

$\sqrt{x^2} = \sqrt{4}$

$x = \pm 2$

(14) $\frac{2x^2}{2} = \frac{32}{2}$

$\sqrt{x^2} = \sqrt{16}$

$x = \pm 4$

(15) $\frac{9x^2}{9} = \frac{25}{9}$

$\sqrt{x^2} = \sqrt{25/9}$

$x = \pm 5/3$

(16) $3x^2 - 15 = 0$

$+15 \quad +15$

$\frac{3x^2}{3} = \frac{15}{3}$

$\sqrt{x^2} = \sqrt{5}$

$x = \pm\sqrt{5}$

(17) $5x^2 - 40 = 0$

$+40 \quad +40$

$\frac{5x^2}{5} = \frac{40}{5}$

$\sqrt{x^2} = \sqrt{8}$

$x = \pm 2\sqrt{2}$