

Objective: SWBAT review the current unit material for the test!

Kickoff

Take out your homework and check your answers:

① (-3, 4) (1, 0) ③ (4, 7) (-2, 1)

② (-9, 144) (8, -60) ④ (4, 6) (1, 3)

Factor and solve each of the following:

1) $\frac{x^2}{5} = \frac{20}{5}$

2) $x^2 = 8x$

$x^2 = 100$
 $-100 \quad -100$
 $x^2 - 100 = 0$ DOIS!
 $(x+10)(x-10) = 0$
 $x+10=0 \quad x-10=0$
 $-10 \quad -10 \quad +10 \quad +10$
 $x = -10 \quad x = 10$

3) $3x^2 + 10x = -x - 6$
 $+x \quad -10x \quad +6$
 $+6$

4) $x^2 + 6x = -21 - 4x$

$3x^2 + 11x + 6 = 0$ MP
 $18x^2$
 $9, 2$
 $(3x+9)(2x+6) = 0$
 $3x(x+3) \quad 2(x+3) = 0$
 $(3x+2)(x+3) = 0$
 $3x+2=0 \quad x+3=0$
 $-2 \quad -2 \quad -3 \quad -3$
 $3x = -2 \quad x = -3$
 $x = -\frac{2}{3}$

5) $2x^2 + 3x = 5$

6) $\frac{x}{9} = \frac{1}{x}$

$2x^2 + 3x - 5 = 0$ $10x^2$
 $-5 \quad -5$
 $-2, 5$
 $(2x^2 - 2x)(5x - 5) = 0$
 $2x(x-1) \quad 5(x-1) = 0$
 $(2x+5)(x-1) = 0$
 $2x+5=0 \quad x-1=0$
 $-5 \quad -5 \quad +1 \quad +1$
 $2x = -5 \quad x = 1$
 $x = -\frac{5}{2}$

$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Solve for the roots by using the quadratic equation for each of the following.

7) $x^2 + 2x - 8 = 0$

8) $2x^2 - x - 13 = 2$

$a=1 \quad b=2 \quad c=-8$
 $\frac{-2 \pm \sqrt{(2)^2 - 4(1)(-8)}}{2(1)}$
 $\frac{-2 \pm \sqrt{36}}{2}$
 $\frac{-2 \pm 6}{2}$
 $\frac{-2+6}{2} = 2 \quad \frac{-2-6}{2} = -4$

9) $9x^2 - 11 = 6x$

10) $14x^2 + 1 = 6x^2 + 7x$

$9x^2 - 6x - 11 = 0$
 $a=9 \quad b=-6 \quad c=-11$
 $\frac{-(-6) \pm \sqrt{(-6)^2 - 4(9)(-11)}}{2(9)}$
 $\frac{6 \pm \sqrt{432}}{18}$
 $\frac{6 \pm 12\sqrt{3}}{18}$
 $\frac{1 \pm 2\sqrt{3}}{3}$
 $\sqrt{432} = \sqrt{144 \cdot 3} = 12\sqrt{3}$

Solve for the roots by completing the square for each of the following.

11) $x^2 = 18x + 40$ 12) $3x^2 - 8x = -4$

$-18x - 18x$ $= 0$

$\frac{1}{2}(-18) = -9 \Rightarrow 81$

$x^2 - 18x + 81 = 40 + 81$

$x^2 - 18x + 81 = 121$

$(x-9)(x-9) = 121$

$\sqrt{(x-9)^2} = \sqrt{121}$

$x-9 = \pm 11$

$x-9 = 11$ $x-9 = -11$

$+9 \quad +9$ $+9 \quad +9$

$x = 20$ $x = -2$

13) $x^2 - 12x + 23 = 0$ 14) $x^2 - 10x + 26 = 8$

$-23 - 23$ $\frac{1}{2}(-12) = (-6)^2$

$x^2 - 12x + 36 = -23 + 36$

$x^2 - 12x + 36 = 13$

$(x-6)(x-6) = 13$

$\sqrt{(x-6)^2} = \sqrt{13}$

$x-6 = \pm\sqrt{13}$

$+6 \quad +6$

$x = 6 \pm \sqrt{13}$

Solve each system.

15) Solve by factoring: $y = x^2 - 10x + 14$
 $y = 7x - 16$

16) Solve by completing the square: $y = x^2 - 8x + 28$
 $y - 8 = 4x$