WARMUP

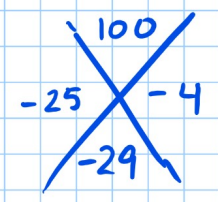
Solve by factoring:

1) $x^2 - 29x + 100 = 0$

$(x-25)(x-4) = 0$

$x-25=0 \quad x-4=0$

$x=25 \quad x=4$



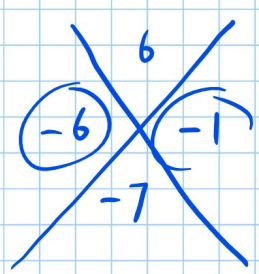
2) $x^2 - 11x + 18 = 0$

$x=9 \quad x=2$

3) $x^2 - x - 2 = 0$

$x=2 \quad x=-1$

4) $6x^2 - 7x + 1 = 0$



	$6x$	-1
x	$6x^2$	$-1x$
-1	$-6x$	1

$(6x-1)(x-1) = 0$

$6x-1=0 \quad x-1=0$

$x = \frac{1}{6} \quad x=1$

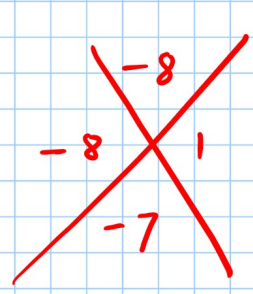
Equations that are Quadratic in Form

$A^2 - 7A - 8 = 0$ $\quad (A-8)(A+1)$

Ratio of 1st exponent to 2nd exponent is $\frac{2}{1}$

$x^4 - 7x^2 - 8 = 0$

$A = x^2$



$(x^2-8)(x^2+1) = 0$

$x^2 - 8 = 0$

$x^2 = 8$

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

2 2 2

$x^2 + 1 = 0$

$x^2 = -1$

$x = \pm\sqrt{-1} = \pm i$

$\pm 2\sqrt{2}, \pm i$

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ex: $x^4 - 5x^2 + 6 = 0$

Let $A = x^2$

$A^2 = x^4$

$A^2 - 5A + 6 = 0$

$(A-2)(A-3) = 0$

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

$x^2 - 2 = 0 \qquad x^2 - 3 = 0$

$x^2 = 2 \qquad x^2 = 3$

$x = \pm\sqrt{2} \qquad x = \pm\sqrt{3}$

6

-2 -3

-5

Graph

$y = x^2 - 7x - 8$

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

x-ints

ex: $x - 2\sqrt{x} - 8 = 0$

$A = \sqrt{x}$

$A^2 = x$

$A^2 - 2A - 8 = 0$

$(A+2)(A-4) = 0$

$(\sqrt{x}+2)(\sqrt{x}-4) = 0$

$\sqrt{x}^2 = (-2)^2 \qquad \sqrt{x}^2 = 4^2$

$\cancel{x = 4} \qquad x = 16$

-8

2 -4

-2

FOR SQUARE ROOT PROBLEMS YOU MUST CHECK YOUR ANSWERS

$4 - 2\sqrt{4} - 8$

$4 - 2\cdot 2 - 8$

$4 - 4 - 8 \neq 0$

$16 - 2\sqrt{16} - 8$

$16 - 2\cdot 4 - 8$

$16 - 8 - 8 = 0$

WORK on

1, 2, 3, 8, 9

8) $2x - 9\sqrt{x} - 18 = 0$

$A = \sqrt{x}$

$2A^2 - 9A - 18 = 0$

$\frac{A}{-6} = \frac{2A}{3}$

-36, -12, -6, -9

$(A-6)(2A+3) = 0$

$(\sqrt{x}-6)(2\sqrt{x}+3) = 0$

$\sqrt{x} - 6 = 0$ $\quad$ $2\sqrt{x} = -3$

$\sqrt{x}^2 = 6^2$ $\quad$ $\sqrt{x}^2 = \left(-\frac{3}{2}\right)^2$

$x = 36$ $\quad$ $\cancel{x = \frac{9}{4}}$

$2 \cdot \frac{9}{4} - 9\sqrt{\frac{9}{4}} - 18$

$4.5 - 13.5 - 18$

	x	2
x		
2		

4) $(x+2)^2 - 2(x+2) - 24 = 0$ $\Rightarrow$ FOIL and combine

$(x+2)(x+2) - 2x - 4 - 24$

$A = x+2$

$A^2 - 2A - 24 = 0$