

Completing the square continued

12)  $5p^2 + 10p - 18 = -3$

$$5p^2 + 10p - 15 = 0$$

$$p^2 + 2p - 3 = 0$$

$$p^2 + 2p + 1 = 3 + 1$$

$$\sqrt{(p+1)^2} = \sqrt{4}$$

$$p+1 = \pm 2$$

$$\sqrt{36}$$

$$6$$

$$p = -1 \pm 2$$

$$p = 1, -3$$

Aug 9-8:40 AM

1.  $K^2 - 14K - 32 = 0$

$$K^2 - 14K + 49 = 32 + 49$$

$$\sqrt{(K-7)^2} = \sqrt{81}$$

$$K-7 = \pm 9$$

$$\sqrt{K} = 7 \pm 9$$

$$K = 16, -2$$

Aug 9-8:43 AM

⑤  $8p^2 - 16p - 42 = 0$

$$8p^2 - 16p = 42$$

$$8(p^2 - 2p + 1) = 42 + 8$$

$$\rightarrow \frac{8(p-1)^2}{8} = \frac{50}{8}$$

$$\sqrt{(p-1)^2} = \pm \sqrt{\frac{25}{4}}$$

$$p-1 = \pm \frac{5}{2}$$

$$\sqrt{p} = \frac{1}{2} \pm \frac{5}{2}$$

$$= \frac{7}{2}, -\frac{3}{2}$$

$$= \sqrt{\frac{49}{4}}$$

Aug 9-8:45 AM

⑨  $8b^2 + 16b + 61 = 8$

$$8b^2 + 16b + 53 = 0$$

$$+16b^2 + 16b = -53$$

$$8(b^2 + 2b + 1) = -53 + 8$$

$$\frac{8(b+1)^2}{8} = \frac{-45}{8}$$

$$\sqrt{(b+1)^2} = \pm \sqrt{\frac{-45}{8}}$$

$$b+1 = \pm \frac{3i\sqrt{5}}{2\sqrt{2}}$$

$$b = -1 \pm \frac{3i\sqrt{5}}{2\sqrt{2}}$$

Aug 9-8:53 AM

⑬  $8r^2 - 16r + 17 = 7$

$$8r^2 - 16r = -10$$

$$8(r^2 - 2r + 1) = -10 + 8$$

$$\frac{8(r-1)^2}{8} = \frac{-2}{8}$$

$$\sqrt{(r-1)^2} = \pm \sqrt{\frac{-1}{4}}$$

$$r-1 = \pm \frac{i}{2}$$

$$r = 1 \pm \frac{i}{2}$$

Aug 9-8:59 AM

⑫

$$5p^2 + 10p - 18 = -3$$

$$5p^2 + 10p - 15 = 0$$

$$p^2 + 2p - 3 = 0$$

$$p^2 - 2p + 1 = 3 + 1$$

$$\sqrt{(p+1)^2} = \sqrt{4}$$

$$p+1 = \pm 2$$

$$p = -1, -3$$

$$5p^2 + 10p - 18 = -3$$

$$5p^2 + 10p = 15$$

$$5(p^2 + 2p + 1) = 15 + 5$$

$$5(p+1)^2 = 20$$

$$\sqrt{(p+1)^2} = \sqrt{4}$$

$$p+1 = \pm 2$$

$$p = -1, -3$$

Aug 9-9:05 AM

Complete the square

- ①  $6x^2 - 12x - 7 = 0$
- ②  $4x^2 - 24x + 100 = 0$
- ③  $5x^2 - 30x + 55 = 0$
- ④  $3x^2 + 30x - 5 = 0$

Aug 9-9:11 AM

Quadratic formula :

Discriminant :

$$ax^2 + bx + c = 0$$

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

$$\textcircled{1} 4x^2 - 9x + 2 = 0$$

$$x = \frac{9 \pm \sqrt{(-9)^2 - 4(4)(2)}}{2(4)}$$

$$= \frac{9 \pm \sqrt{49}}{8}$$

$$= \frac{9 \pm 7}{8}$$

$$x = \frac{16}{8} = 2 ; \frac{2}{8} = \frac{1}{4}$$

Aug 9-9:14 AM

$$\textcircled{2} \quad \overset{a}{10}x^2 + \overset{b}{2}x - \overset{c}{5} = 0$$

$$x = \frac{-2 \pm \sqrt{(2)^2 - 4(10)(-5)}}{2(10)}$$

$$= \frac{-2 \pm \sqrt{204}}{20}$$

$$= \frac{-2 \pm 2\sqrt{51}}{20} = \frac{-1 \pm \sqrt{51}}{10}$$

Aug 9-9:24 AM

$$\textcircled{3} \quad 3x^2 + 2x + 1 = 0$$

$$\frac{-2 \pm \sqrt{(2)^2 - 4(3)(1)}}{2(3)}$$

$$\frac{-2 \pm i\sqrt{8}}{6} = \frac{-2 \pm 2i\sqrt{2}}{6}$$

$$= \frac{-1 \pm i\sqrt{2}}{3}$$

Aug 9-9:28 AM

discriminant :

$$b^2 - 4ac$$

sols?

$$b^2 - 4ac > 0 (+) \quad 2 \text{ real}$$

$$b^2 - 4ac < 0 (-) \quad 2 \text{ imag}$$

$$b^2 - 4ac = 0 \quad 1 \text{ real}$$

$$\textcircled{1} \quad x^2 + 3x + 2 = 0$$

$$3^2 - 4(1)(2) = 1$$

$$\boxed{2 \text{ real}}$$

$$\textcircled{2} \quad -4x^2 + 20x - 25 = 0$$

$$(20)^2 - 4(-4)(-25) = 0$$

$$\boxed{1 \text{ real soln}}$$

Aug 9-9:38 AM