

# Mixed Solving Solving Methods

1. Factoring (F)

2. Square Roots (SR)

3. Quad formula (QF)

When do I use each method?

Factoring = 0

works for

can

Square Roots

• Standard form

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

$$b = 0$$

no middle term

• Vertex form

$$a(x-h)^2 + k = 0$$

QF = 0

for any problem

need:

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

$$a =$$

$$b =$$

$$c =$$

ex: Determine which method is best to solve each quadratic equation. Do not repeat a method. DO NOT SOLVE.

a)

~~$x^2 + 5x + 5 = 0$~~       1.  $x^2 + 2x + 5 = 0$       QF

~~do not factor~~

$x^2 + 6x + 5 = 0$       2.  $x^2 + 6x + 5 = 0$       factoring

$+1$   $+5$   
can factor

3.  $2(x+1)^2 - 4 = 0$       SR

"vertex form"

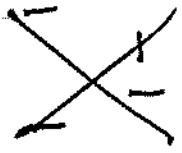
b)

has  
a CF  
of  $x \dots$

1.  $14x^2 - 21x = 0$  factoring

2.  $x^2 + 3x - 1 = 0$  QF

3.  $x^2 - 80 = 0$  SQ



does not  
factor

no  
middle  
term

ex: Determine which method is best to solve each quadratic equation. Do not repeat a method. SOLVE each equation.

~~$x^2 + 13$~~   
 ~~$x^2 + 13$~~

does  
not  
factor

a.  $x^2 - 4x + 13 = 0$  **QF**

no  
middle  
term

b.  $x^2 + 72 = 0$  **SP**

has  
a CoCF  
of -3...  
etc...

c.  $-6x^2 + 3x + 30 = 0$  **F**

ex: Determine which method is best to solve each quadratic equation. Do not repeat a method. SOLVE each equation.

Does not factor

a.  $x^2 - 4x + 13 = 0$

DF

$$a=1 \quad x = \frac{4 \pm \sqrt{(-4)^2 - 4(1)(13)}}{2(1)}$$

$$b=-4$$

$$c=13 \quad x = \frac{4 \pm \sqrt{16-52}}{2}$$

$$x = \frac{4 \pm \sqrt{-36}}{2}$$

$$x = \frac{4 \pm 6i}{2}$$

$$x = 2 \pm 3i$$

ex: Determine which method is best to solve each quadratic equation. Do not repeat a method. SOLVE each equation.

no  
middle  
term

$$b. x^2 + 72 = 0 \quad \text{SP}$$

$$\sqrt{x^2} = \sqrt{-72}$$

$$|x| = 6i\sqrt{2}$$

$$x = \pm 6i\sqrt{2}$$

$$\sqrt{-72}$$

$$\sqrt{-1 \cdot 36 \cdot 2}$$

$$\sqrt{-1} \quad \sqrt{36} \quad \sqrt{2}$$

$$i \cdot 6 \cdot \sqrt{2}$$

$$6i\sqrt{2}$$

ex: Determine which method is best to solve each quadratic equation. Do not repeat a method. SOLVE each equation.

$$c. -6x^2 + 3x + 30 = 0 \quad f$$

$$-3(2x^2 - x - 10) = 0$$

$$-3(2x - 5)(x + 2) = 0$$

↓

↓

$$2x - 5 = 0$$

$$+5 \quad +5$$

$$x + 2 = 0$$

$$-2 \quad -2$$

$$x = -2$$

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

$$x = 5/2, -2$$