

2 possible answers

$x^2 - 2x - 16 = 0$
 different signs

$_ * _ = -16$
 $_ + _ = -2$

16
2 8
1 16
4 4

Use quadratic formula

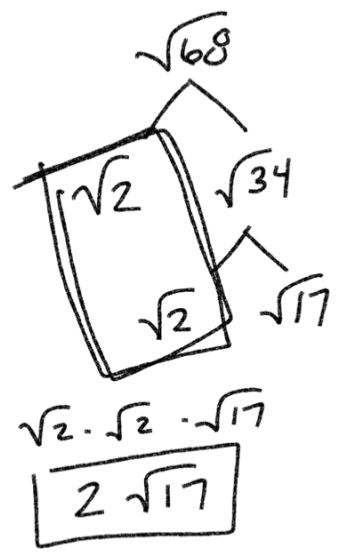
$a = 1$
 $b = -2$
 $c = -16$

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

$\sqrt{\square} - \sqrt{\square} = \square$

$$\frac{-(-2) \pm \sqrt{(-2)^2 - 4(1)(-16)}}{2(1)}$$

$$\frac{2 \pm \sqrt{4 + 64}}{2}$$



discriminant
 68
2 real solutions

$$\frac{2 \pm \sqrt{68}}{2}$$

$$\frac{\frac{2}{2} \pm \frac{2\sqrt{17}}{2}}{\frac{2}{2}}$$

$$\frac{1 \pm \sqrt{17}}{1} = \boxed{\begin{matrix} 1 + \sqrt{17} & 1 - \sqrt{17} \end{matrix}}$$

$$y = \boxed{x^2} + 4x + 12 \quad \leftarrow 2 \text{ possible answers}$$

$$a = 1$$

$$b = 4$$

$$c = 12$$

Quadratic Formula

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

Roots
x-intercept

$$\frac{-4 \pm \sqrt{(4)^2 - 4(1)(12)}}{2(1)}$$

$$\frac{-4 \pm \sqrt{16 - 48}}{2}$$

$$\frac{-4 \pm \sqrt{-32}}{2}$$

$$\frac{-4 \pm \frac{4i\sqrt{2}}{2}}{2}$$

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

$$\boxed{-2 + 2i\sqrt{2} \quad -2 - 2i\sqrt{2}}$$

$$\sqrt{-32} = 4i\sqrt{2}$$

$$\sqrt{-32} = \sqrt{32} \cdot \sqrt{-1}$$

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

$$\sqrt{-32} = i\sqrt{32}$$

$$\sqrt{32} = 4\sqrt{2}$$

$$\sqrt{2} \sqrt{16}$$

cannot take the square root of a negative number

discriminant

Quadratic Formula

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

discriminant

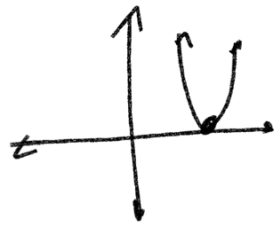
$$b^2 - 4ac$$

positive

$$b^2 - 4ac > 0$$

2 real answers

$\frac{-b}{2a}$ = X coordinate
for vertex



$$b^2 - 4ac < 0$$

negative

\emptyset real solutions,
2 imaginary

$$b^2 - 4ac = 0$$

1 real solution

$$y = 3x^2 + 2x + 8$$

$$a = 3$$

$$b = 2$$

$$c = 8$$

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

$$\frac{-2 \pm \sqrt{(2)^2 - 4(3)(8)}}{2(3)}$$

$$\frac{-2 \pm 2i\sqrt{23}}{2}$$

$$\frac{6}{2}$$

$$\frac{-1 \pm i\sqrt{23}}{3}$$

$$\frac{-2 \pm \sqrt{4 - 96}}{6}$$

$$= \frac{-2 \pm \sqrt{-92}}{6}$$

$$\sqrt{-92} = \sqrt{92} \sqrt{-1} = i$$

$$\sqrt{92} = \sqrt{2} \sqrt{46} = \sqrt{2} \sqrt{2} \sqrt{23} = 2\sqrt{23}$$

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

$$\boxed{i^2 = -1}$$

$$i^2 = i \cdot i$$

$$i^2 = \sqrt{-1} \cdot \sqrt{-1} = -1$$

$$i^3 = i^2 \cdot i$$

$$-1 \cdot i = -i$$

$$i^4 = i^2 \cdot i^2$$

$$-1 \cdot -1 = 1$$

$$i^5 = i^4 \cdot i$$

$$1 \cdot i = i$$

$$(3+i)(2+i)$$

$$6 + 3i + 2i + i^2 \quad i^2 = -1$$

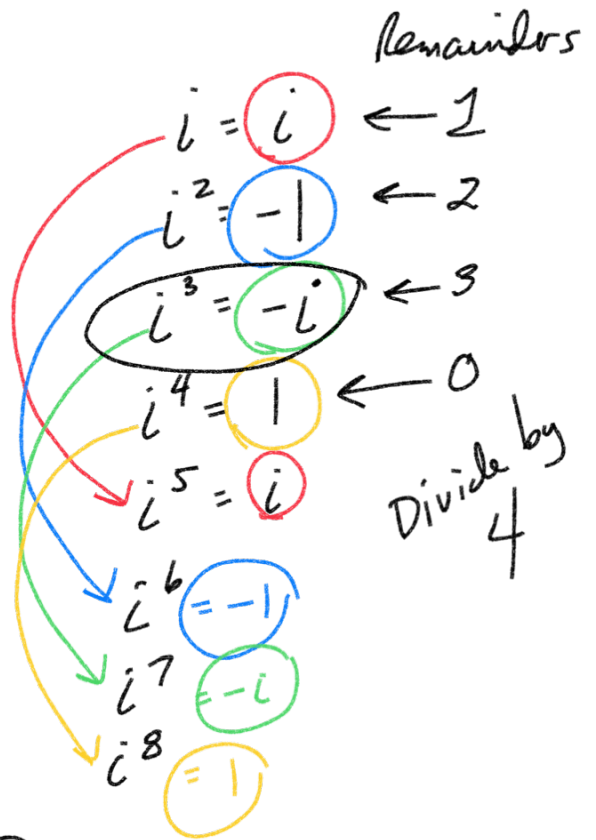
$$6 + 5i + i^2$$

$$\boxed{6} + 5i \boxed{-1}$$

$$= \boxed{5 + 5i}$$

$$a \pm bi$$

↑
imaginary
number
second!



$$i^{67}$$

$$\begin{array}{r} 4 \overline{) 67} \\ -4 \\ \hline 27 \\ -24 \\ \hline 3 \end{array}$$

$$i^{67} = i^3 \quad \boxed{-i}$$

FOIL

①

$$(2+i)(2-i)$$

$$4 - \cancel{2i + 2i} - i^2$$

$$4 - (-1)$$

$$4 + 1$$

$$\boxed{5}$$

②

$$4i(5-3i)$$

$$20i - 12i^2 \quad i^2 = -1$$

$$20i - 12(-1)$$

$$20i + 12$$

$$\boxed{12 + 20i}$$

HW

ch 5, 6 evas

Supplemental WS

Online HW 25

Quiz 25

ch 5 Pre-test

} April 15th

HW/Quiz 23

March 26th
tomorrow

HW/Quiz 24 due April 8th