

Simplify

DRILL

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

$$i^2 = -1$$

✓ ①

$$(4 + 3i) + (5 - 8i)$$

$$\boxed{9 - 5i}$$

✓ ②

$$(5 + 2i)(3 - 4i)$$

$$= 15 - 20i + 6i - 8i^2$$

$$= 15 - 14i - 8(-1)$$

$$= 15 - 14i + 8$$

$$= \boxed{23 - 14i}$$

Ex:

$$\frac{(4+2i)(3+6i)}{(3-6i)(3+6i)}$$

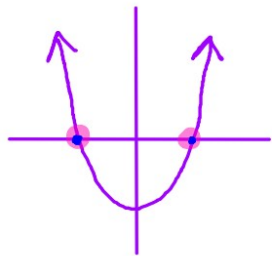
$$= \frac{12 + 24i + 6i + 12i^2}{9 + \cancel{18i} - \cancel{18i} - 36i^2}$$

$$= \frac{12 + 30i + 12(-1)}{9 - 36(-1)}$$

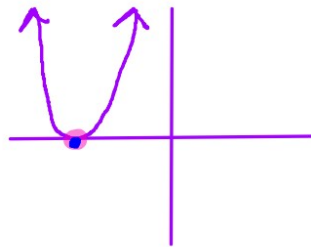
$$= \frac{\cancel{12} + 30i - \cancel{12}}{9 + 36} = \frac{30i}{45} \stackrel{\div 15}{=} \frac{2i}{3}$$

* When you divide by a complex # we multiply numerator & denominator by the conjugate of the denominator.

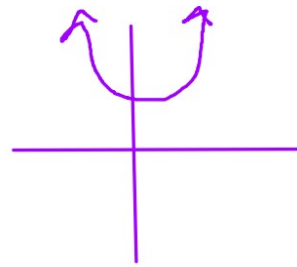
Graphing Quadratics



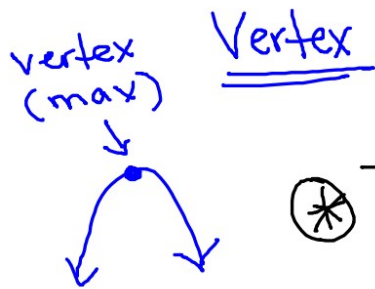
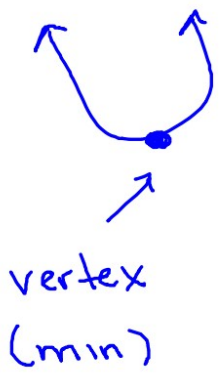
2 real solutions



1 real solution



0 real solution
(imaginary)



$$* f(x) = \underline{a}x^2 + \underline{b}x + c *$$

⊛ The vertex is located
at $x = \frac{-b}{2a}$

Ex: $f(x) = \underline{2}x^2 + \underline{8}x - \underline{3}$

$a = 2$

$b = 8$

$c = -3$

Find
Vertex
 $(-2, -11)$

$$x = \frac{-b}{2a} = \frac{-(8)}{2(2)} = \frac{-8}{4} = -2$$

$$x = -2 = 2(-2)^2 + 8(-2) - 3 = -11$$