

STATION 1

Solve the following equations by factoring.

1. $20x^2 + 48x = 5$

2. $3x^2 - 21x + 36 = 0$

Solve the following equations by completing the square.

3. $x^2 - 12x + 44 = 0$

4. $2x^2 + 18 = 34 - 12x$

STATION 2

Solve each of the following using the quadratic formula

5. $-2x^2 + 3x = 6$

6. $x^2 + 4x + 3 = 0$

Solve each of the following using the By taking the square root

7. $2(x-5)^2 + 7 = 15$

8. $x^2 + 15 = -5$

STATION 3

Write each of the following in standard form

9. $2(x-4)^2 + 1 = 19 + x$

10. $\frac{3-2i}{5+2i}$

11. $(i+8)(2i-1)$

12. $(i+8) - (2i-1)$

13. i^{35}

STATION 4

Solve and graph each of the following. (use the 5-point table)

14. $y < x^2 + 2x - 15$

15. $y \geq -x^2 - 10x - 16$

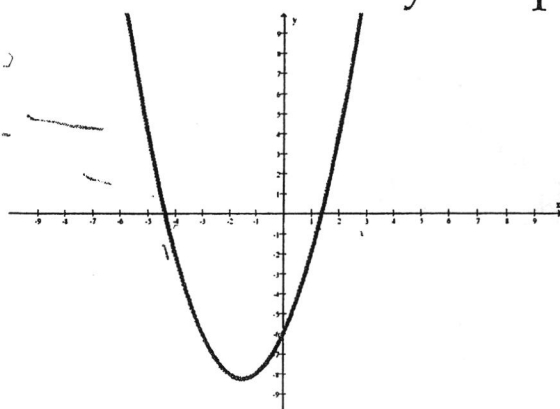
Solve and graph each of the following.

16. $x^2 + 9x + 18 > 0$

17. $x^2 + 3x - 10 \leq 0$

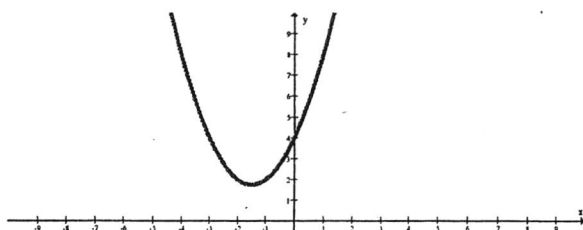
STATION 5

Answer each on your paper.



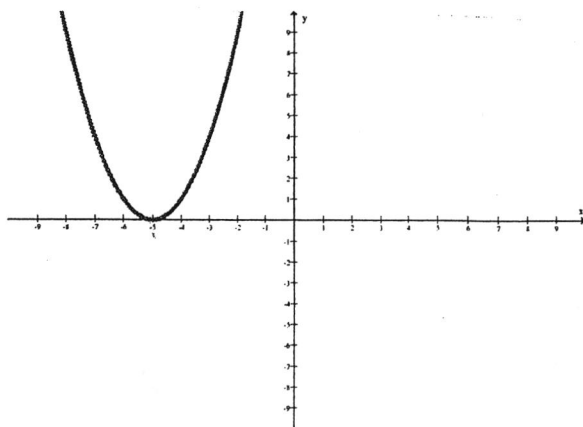
18. How many solutions does this equation have?

19. Are they real or imaginary?



20. How many solutions does this equation have?

21. Are they real or imaginary?



22. How many solutions does this equation have?

23. Are they real or imaginary?

discriminant

The ~~determinant~~ is the part of the quadratic formula $D = b^2 - 4ac$.

24. How many solutions are there if $D = 12$?

25. How many solutions are there if $D = -6$?

26. How many solutions are there if $D = 0$?

$$1. 20x^2 + 48x - 5 = 0$$

$$\begin{array}{r} -100 \\ 1, 100 \\ \hline 2, 50 \\ 4, 25 \\ 5, 20 \end{array}$$

$$(20x^2 + 2x) + 50x - 5 = 0$$

$$2x(10x-1) + 5(10x-1) = 0$$

$$(2x+5)(10x-1) = 0$$

$$x = -\frac{5}{2} \quad x = \frac{1}{10}$$

$$2. 3x^2 - 21x + 36 = 0$$

$$x^2 - 7x + 12 = 0$$

$$(x-3)(x-4) = 0$$

$$3, 4$$

$$3. x^2 - 12x = -44 \quad -12 \rightarrow -6 \rightarrow 36$$

$$x^2 - 12x + 36 = -44 + 36$$

$$(x-6)^2 = -8$$

$$x-6 = \pm\sqrt{-8}$$

$$x-6 = \pm\sqrt{8}i$$

$$x = 6 \pm \sqrt{8}i = 6 \pm 2\sqrt{2}i$$

$$4. 2x^2 + 12x = 16$$

$$x^2 + 6x = 8$$

$$6 \rightarrow 3 \rightarrow 9$$

$$x^2 + 6x + 9 = 8 + 9$$

$$(x+3)^2 = 17$$

$$x+3 = \pm\sqrt{17}$$

$$x = -3 \pm \sqrt{17}$$

$$5. -2x^2 + 3x - 6 = 0$$

$$\frac{-3 \pm \sqrt{9 - 4 \cdot 2 \cdot 6}}{2 \cdot 2}$$

$$\frac{-3 \pm \sqrt{39}i}{-4}$$

$$\boxed{\frac{3}{4} \pm \frac{\sqrt{39}i}{4}}$$

$$6. x^2 + 4x + 3 = 0$$

$$\frac{-4 \pm \sqrt{16 - 4 \cdot 1 \cdot 3}}{2}$$

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

$$\frac{-4 \pm 2}{2} = -2 \pm 1 = \boxed{-1, -3}$$

$$7. 2(x-5)^2 + 7 = 15$$

$$2(x-5)^2 = 8$$

$$(x-5)^2 = 4$$

$$x-5 = \pm 2$$

$$x = 5 \pm 2 = \boxed{7, 3}$$

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

$$8. x^2 + 15 = -5$$

$$x^2 = -20$$

$$x = \pm \sqrt{-20}$$

$$x = \pm \sqrt{20}i$$

$$x = \pm 2\sqrt{5}i$$

$$9. \quad 2(x-4)^2 + 1 = 19 + x$$

$$2(x^2 - 8x + 16) + 1 = 19 + x$$

$$2x^2 - 16x + 32 + 1 = 19 + x$$

$$\boxed{2x^2 - 17x + 14 = 0}$$

$$10. \quad \frac{3-2i}{5+2i} \cdot \frac{5-2i}{5-2i} = \frac{15-6i-10i+4i^2}{25-4i^2}$$

$$\frac{15-16i-4}{25+4}$$

$$\frac{11-16i}{29}$$

$$\boxed{\frac{11}{29} - \frac{16}{29}i}$$

$$11. \quad (i+8)(2i-1)$$

$$2i^2 - i + 16i - 8$$

$$2i^2 + 15i - 8$$

$$-2 + 15i - 8$$

$$\boxed{-10 + 15i}$$

$$12. \quad (i+8) - 2i + 1$$

$$-i + 9$$

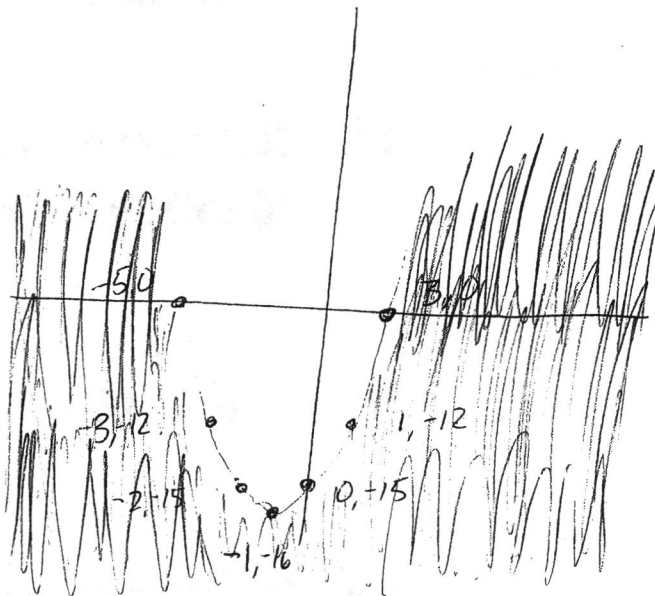
$$\boxed{9-i}$$

$$13. \quad i^{35} = i^3 = \boxed{-i}$$

14. 2 variable

$$\frac{-b}{2a} = \frac{-2}{2} = -1$$

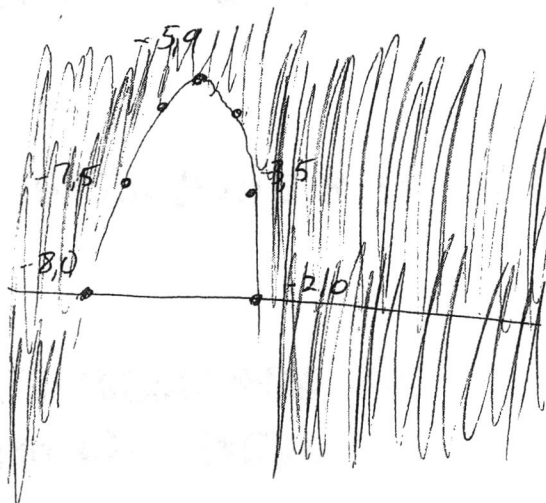
1	-12
0	-15
-1	-16
-2	-15
-3	-12



15.

$$\frac{-b}{2a} = \frac{10}{2 \cdot 1} = -5$$

-3	5
-4	8
-5	9
-6	8
-7	5



16. 1 variable

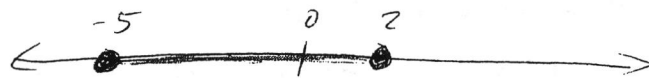
$$x^2 + 9x + 18 > 0$$

$$x^2 + 9x + 18 = 0 \rightarrow x = -6, -3$$



17. $x^2 + 3x - 10 \leq 0$

$$x^2 + 3x - 10 = 0 \rightarrow x = 2, -5$$



(18) 2 solutions, (19) Real

(20) 2 solutions (21) Imaginary

(22) 1 solution (23) Real

24 2 Real solutions

25 2 imaginary solutions

26 1 Real solution