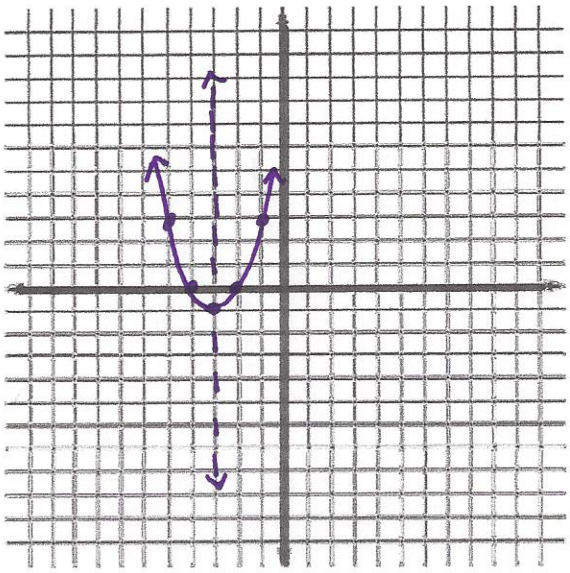
Graph the following quadratics:

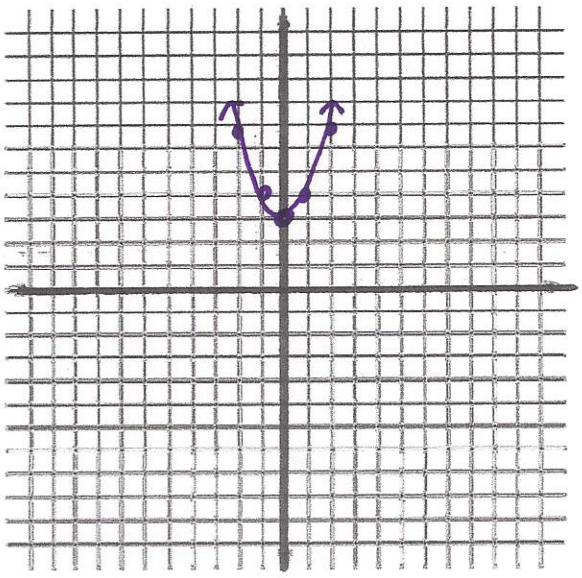
1) $y = x^2 + 6x + 8$

vertex (-3 , -1)
maximum or (minimum) $y = -1$
roots: $x =$ -4 , $x =$ -2



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

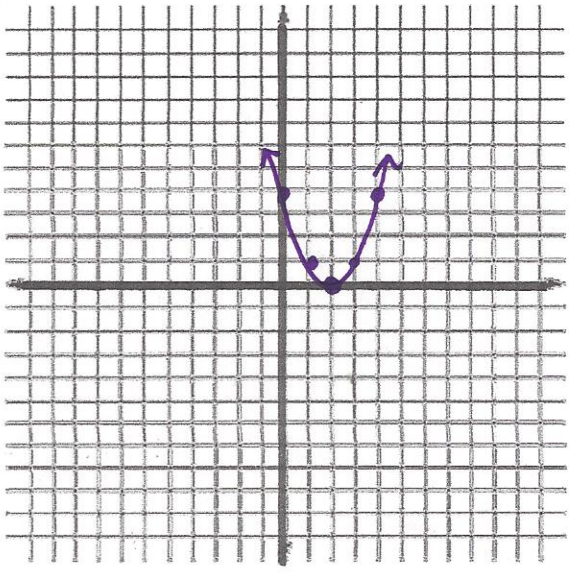
vertex (0 , 3)
maximum or (minimum) $y = 3$
roots: $x =$ — , $x =$ — No real roots



3) $y = (x - 2)^2$

vertex (2 , 0)
maximum or (minimum) $y = 0$
roots: $x =$ 2 , $x =$ 2

double root



4) $f(x) = 2x^2 - 6x + 4$

$x^2 - 3x + 2$
$(x-2)(x-1)$

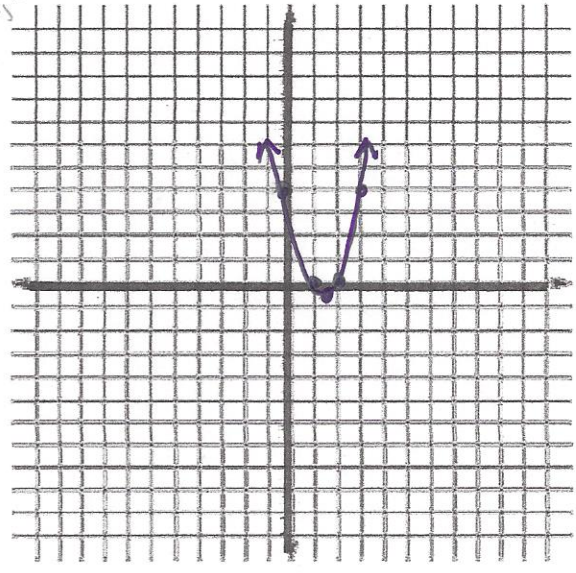
$2\left(\frac{3}{2}\right)^2 - 6\left(\frac{3}{2}\right) + 4$

$2\left(\frac{9}{4}\right) - 9 + 4$

$4.5 + 4 - 9$

-0.5

vertex (1.5, 0.5)
maximum or (minimum) $y = 0.5$
roots: $x =$ 1 , $x =$ 2



RIDDLE
ALGEBRA 2
TEST #3 REVIEW

NAME : _____

Graph the following quadratics: * See page 1 *

1) $y = x^2 + 6x + 8$

vertex (,)
maximum or minimum
roots: x = _____, x = _____

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

vertex (,)
maximum or minimum
roots: x = _____, x = _____

3) $y = (x - 2)^2$

vertex (,)
maximum or minimum
roots: x = _____, x = _____

4) $f(x) = 2x^2 - 6x + 4$

vertex (,)
maximum or minimum
roots: x = _____, x = _____

Solve by **FACTORING**.

5) $5x^2 - 20x = 0$ $x=0$ $x=4$

6) $4x^2 - 25 = 0$ $x=\frac{5}{2}$ $x=-\frac{5}{2}$

7) $c^2 - 4c - 12 = 0$ $x=6$ $x=-2$

8) $4x^2 + 4x - 3 = 0$ $x=\frac{1}{2}$ $x=-\frac{3}{2}$

Find the value of the discriminant and describe the nature of the roots of each quadratic equation. SOLVE!!!!!!

9) $x^2 + 7x + 13 = 0$ $D=-3$ 2 conjugate imaginary roots $x=\frac{-7\pm i\sqrt{3}}{2}$

10) $9x^2 + 42x + 49 = 0$ $D=0$ 1 double root $x=-7/3$

11) $2x^2 - 5x = 3$ $D=49$ 2 real, rational roots $x=3$ $x=-\frac{1}{2}$

12) $18x^2 = 9x + 45$ $D=3321$ 2 real, irrational roots $x=\frac{1\pm\sqrt{41}}{4}$

Simplify.

13) $\sqrt{-49}$ $7i$

14) $\sqrt{-\frac{25}{64}}$ $\frac{5i}{8}$

15) $4\sqrt{-32}$ $16i\sqrt{2}$

16) $\sqrt{-15}\cdot\sqrt{-25}$ $-5\sqrt{15}$

17) $(-3i)(7i)$ -21

18) $(3i)^2$ -9

19) i^7 $-i$

20) i^{22} -1

21) $(5 + 6i) - (2 + 7i)$ $3 - i$

22) $(7 + 12i) + (4 + 9i)$ $11 + 21i$

23) $(3 - 10i) - (-6 + 12i)$ $9 - 22i$

24) $(2 - 15i) + (-9 - 7i)$ $-7 - 22i$

25) $3(8 - 4i)$ $24 - 12i$

26) $(5 + 11i)(2 - i)$ $21 + 17i$

27) $(2 + 4i)(2 - 4i)$ 20

28) $(3 - 5i)^2$ $-16 - 30i$

29) $\frac{5-2i}{i}$ $-5i - 2$

30) $\frac{2+9i}{5i}$ $\frac{2i - 9}{-5}$

31) $\frac{8}{3-2i}$ $\frac{24 + 16i}{13}$

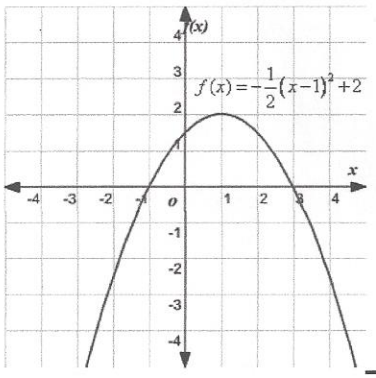
32) $\frac{3-2i}{6+7i}$ $\frac{4 - 33i}{85}$

GRAPH. * see page 4 *

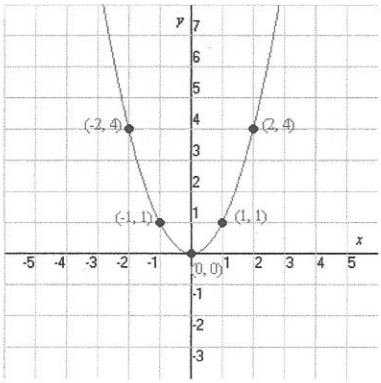
33) $y = -3|x - 3| + 3$

34) $f(x) = \frac{1}{2}(-x + 2)^2 - 2$

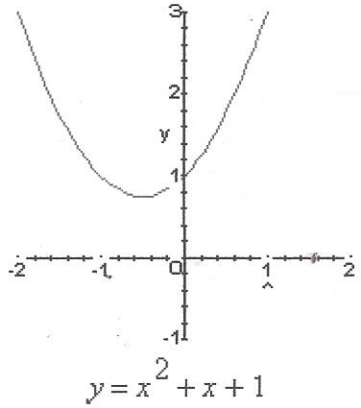
Solve by looking at the graph.



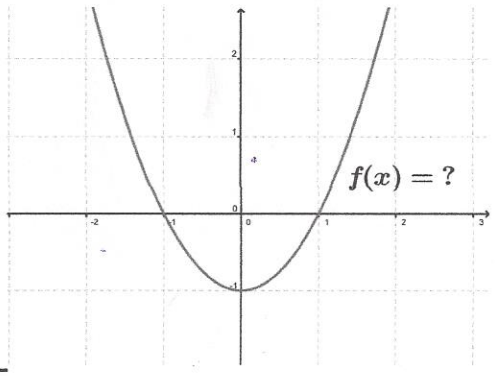
$x = -1 \quad x = 3$



$x = 0$
Double root

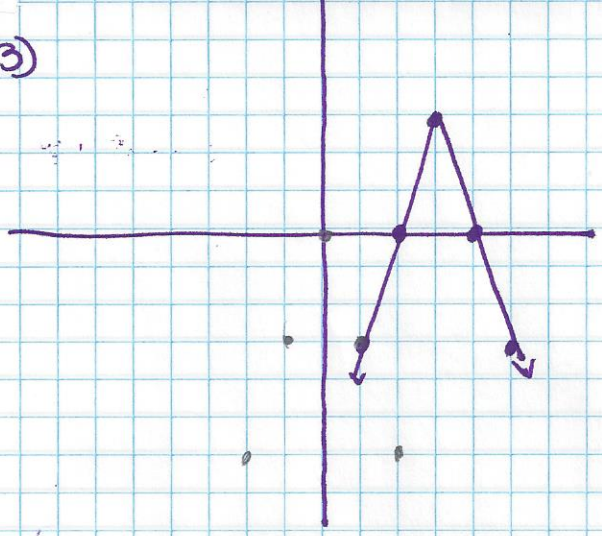


2 imaginary roots



$x = 1 \quad x = -1$

33)

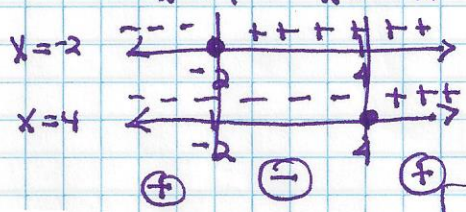


* $x^2 - 2x - 8 \leq 0$

$(x-4)(x+2) = 0$

less than 0

$x = 4 \quad x = -2$

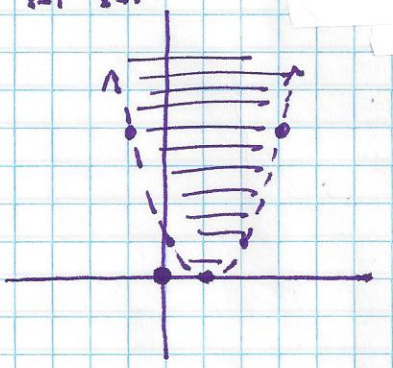


* $0 > 0 - 0 + 1$ F

• $y > x^2 - 2x + 1$

$(x-1)(x-1)$

$x=1 \quad x=1$



34)