

Test Next Time !

Name: _____
Period: _____

Algebra 2

Test #2 Practice

A day (Mar 1) B day (Mar 5)

1. Simplify.

a) $\frac{-\sqrt{-49}}{-7i}$

b) $\sqrt{-12}$

c) $(4-5i)+(1+7i)$
 $\underline{5+2i}$

d) $6i - (-8+3i)$

e) $4i \cdot 7i$
 $\underline{-28}$

f) $(-6i)^2$

g) $-12i(-3)$

h) $\sqrt{-2} \cdot 3i$
 $= i\sqrt{2} \cdot 3i$
 $= 3i^2\sqrt{2}$
 $\underline{= -3\sqrt{2}}$

i) $-\sqrt{-5} \cdot \sqrt{-15}$

j) $(3+9i)(2-5i)$
 $6 - 15i + 18i - 45i^2$

$\underline{51+3i}$

k) $(4+3i)(4-3i)$

2. Solve by Factoring

a) $x^2 + 3x - 10 = 0$

b) $x^2 + 12 = -7x$
 $x^2 + 7x + 12 = 0$
 $(x+2)(x+5) = 0$
 $x+2=0 \quad x+5=0$
 $\underline{x=-2, -5}$

c) $2x^2 + 6x = 0$

d) $5x^2 = 15x$
 $5x^2 - 15x = 0$
 $5x(x-3) = 0$
 $5x=0 \quad x-3=0$
 $x=0 \quad x=3$

3. Solve using square roots

a) $9x^2 = 36$
 $\sqrt{x^2} = \sqrt{4}$
 $x = \pm 2$

b) $3x^2 + 2 = 9$

c) $3(x+4)^2 = 12$
 $\sqrt{(x+4)^2} = \sqrt{4}$
 $x+4 = \pm 2$
 $x = -4 \pm 2$
 $x = -2, -6$

d) $x^2 = 6$

e) $-2x^2 + 5 = 0$
 $x = \pm \frac{\sqrt{10}}{2}$

f) $-3(x+2)^2 = -27$

4. Write the quadratic formula

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

5. Solve using the quadratic formula (start by identifying the values for a, b, and c)

a) $x^2 + 4x - 5 = 0$

b) $x^2 + 13 = 4x \rightarrow x^2 - 4x + 13 = 0$

$$\begin{array}{l} a=1 \\ b=-4 \\ c=13 \end{array} \quad x = 2 \pm 3i$$

c) $3x^2 + 5 = -8x$

d) $x^2 + x = 0$

$$\begin{array}{l} a=1 \\ b=1 \\ c=0 \end{array} \quad x = 0, -1$$

e) $x^2 - 6x = -4$

f) $-2x^2 = 36 - 16x$

$$\begin{array}{l} a=2 \\ b=-16 \\ c=36 \end{array} \quad x = -4 \pm i\sqrt{2}$$

6. Use the graph of $f(x)$ to answer the questions below:

a) $f(2) =$

b) y -intercept: $(0, 5)$

c) x -intercepts: (\quad, \quad) and (\quad, \quad)

d) For $f(x) = -3$, find two x -values:

Note: this means "find x when $y = 5$ "

$x = 2$ $x = 4$

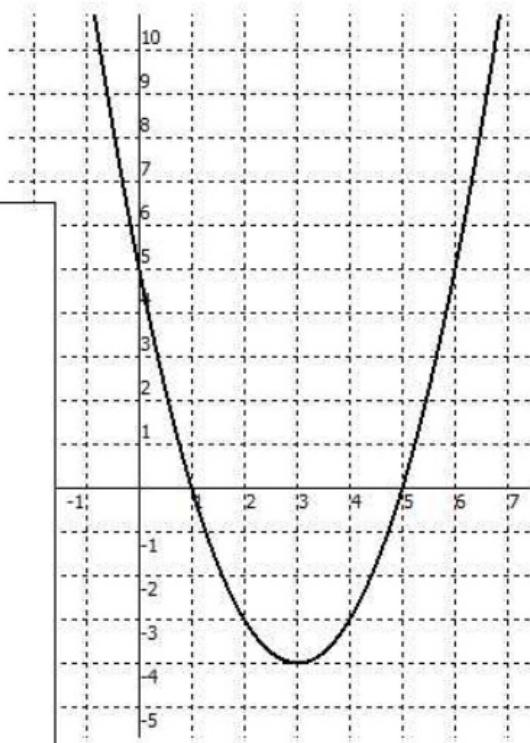
e) Domain of $f(x)$:

f) Range of $f(x)$: $y \geq -4$

g) Function: $f(x) = (x-3)^2 - 4$

h) What is the lowest point (or coordinate) on the graph?

(\quad, \quad)



7. Use the graph of $g(x)$ to answer the questions below:

a) $g(3) = 5$

b) y -intercept: $(\underline{\hspace{2cm}}, \underline{\hspace{2cm}})$

c) x -intercepts: $(\underline{-2}, 0)$ and $(\underline{4}, 0)$

d) For $g(x) = -7$, find two x -values:

Note: this means "find x when $y = 5$ "

$x =$

$x =$

e) Domain of $g(x)$:

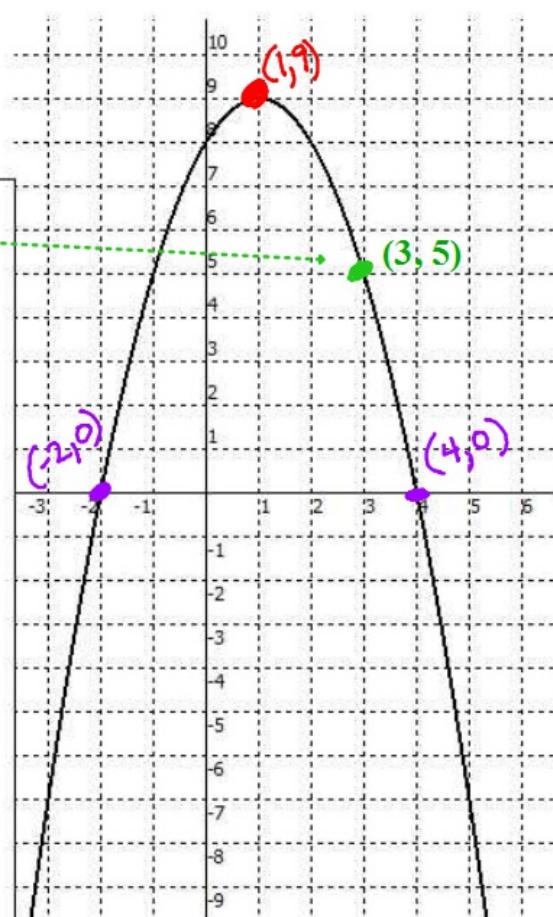
f) Range of $g(x)$:

g) Function:

$$g(x) = -(\underline{x} - 4)^2 + \underline{9}$$

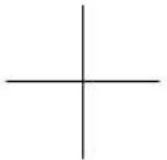
h) What is the highest point (or coordinate) on the graph?

$$(\underline{1}, \underline{9})$$

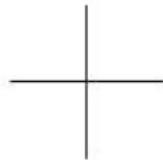


8. Solve by using a graphing calculator (draw a rough sketch of the graph and label the x-intercepts)

a) $x^2 + 2x - 8 = 0$



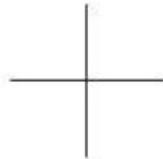
b) $x^2 - 4x - 5 = 0$



c) $x^2 + 11x = -24$



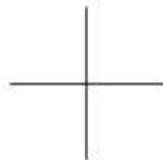
d) $x^2 - 8x + 16 = 0$



e) $x^2 + 4x = 3$



f) $x^2 + 1 = 0$



9. Solve using any method

a) $x^2 - 1 = 0$

$X = 1, -1$

b) $x^2 - 2x - 8 = 0$

$X = 4, -2$

c) $2x^2 + 7x + 3 = 0$

$X = -\frac{1}{2}, -3$

d) $x^2 + 13 = 8x$

$X = 4 \pm \sqrt{3}$

10. Write the equation of the quadratic whose solutions are given

a) 3, 5

b) -4, 1

$$\begin{aligned} X &= -4 & X &= 1 \\ X+4 &= 0 & X-1 &= 0 \\ (X+4)(X-1) &= 0 \end{aligned}$$

$$X^2 + 3X - 4 = 0$$