

## Quiz 2

Name

Solution 2/6/14

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve the equation.

1)  $|x + 5| - 3 = 13$

A)  $\{-11, 11\}$

B)  $\{-5, 11\}$

C)  $\{15, 11\}$

D)  $\{-21, 11\}$

1)

☒ D

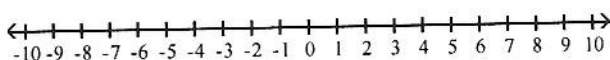
$|x+5|=16$

$x+5=16$  or  $x+5=-16$

$x=11$  or  $x=-21$

Solve the inequality. Express your answer using interval notation. Graph the solution set.

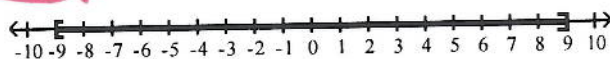
2)  $|6x| < 54$



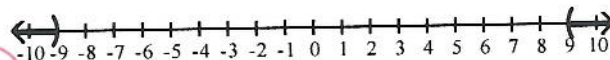
A)  $(-\infty, 9)$



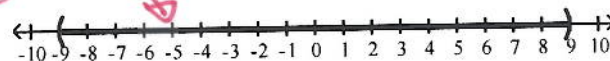
B)  $(-9, 9)$



C)  $(-\infty, -9)$  or  $(9, \infty)$



D)  $(-9, 9)$



2)

☒ D

Find the zero of the linear function.

3)  $G(x) = -\frac{1}{2}x - 4$

A)  $-2$

B)  $2$

C)  $8$

D)  $-8$

3)

☒ D

$-\frac{1}{2}x - 4 = 0$

$-\frac{1}{2}x = 4$

$x = -8$

Solve the equation.

4)  $\left|\frac{1}{4}x - 6\right| = 2$

A)  $\{32\}$

B)  $\{16, 32, 0\}$

C)  $\{16\}$

D)  $\{16, 32\}$

4)

☒ D

$\frac{1}{4}x - 6 = 2$

or  $\frac{1}{4}x - 6 = -2$

$\frac{1}{4}x = 8$

$x = 32$

$\frac{1}{4}x = 4$

$x = 16$

Solve the problem.

5) Suppose that  $f(x) = -x - 3$  and  $g(x) = x - 13$ .

(a) Solve  $f(x) = 0$ .

(b) Solve  $g(x) = 0$ .

(c) Solve  $f(x) = g(x)$ .

A) (a)  $x = -3$ ; (b)  $x = 13$ ; (c)  $x = 5$

C) (a)  $x = -3$ ; (b)  $x = -13$ ; (c)  $x = 5$

$$f(x) = 0 \therefore -x - 3 = 0 \quad \boxed{x = -3}$$

$$g(x) = 0 \therefore x - 13 = 0 \quad \boxed{x = 13}$$

$$f(x) = g(x)$$

B) (a)  $x = 3$ ; (b)  $x = 13$ ; (c)  $x = 5$

D) (a)  $x = -3$ ; (b)  $x = 13$ ; (c)  $x = -8$

5) A

$$-x - 3 = x - 13$$

$$10 = 2x$$

$$\boxed{x = 5}$$

Use factoring to find the zeros of the quadratic function. List the x-intercepts of the graph of the function.

6)  $f(x) = x^2 + 2x - 24$

A)  $x = 6, x = 4$

B)  $x = -6, x = 1$

C)  $x = 6, x = -4$

D)  $x = -6, x = 4$

6) D

$$x^2 + 2x - 24 = 0$$

$$(x - 4)(x + 6) = 0$$

$$x = 4, -6$$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Solve the problem. Write in the form  $a + bi$

7)  $(5 + 3i)(7 - 3i)$

7)  $44 + 6i$

$$35 + 21i - 15i - 9i^2$$

$$35 + 9 + 6i$$

$$= \boxed{44 + 6i}$$

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

$$\frac{3 + 4i}{3 + 5i} \cdot \frac{3 - 5i}{3 - 5i} = \frac{9 - 15i + 12i - 20i^2}{9 + 25} = \frac{29 - 3i}{34}$$

8)  $\frac{29}{34} - \frac{3}{34}i$

Solve the equation.

9) Bonus  $|6x| = 3x^2$

9)  $x = 0, 2, -2$

$$6x = 3x^2 \quad \text{or} \quad 6x = -3x^2$$

$$6x - 3x^2 = 0$$

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

$$3x(2 - x) = 0$$

$$3x(2 + x) = 0$$

$$\boxed{x = 0, 2}$$

$$x = 0, -2$$

## Quiz 2

Name \_\_\_\_\_

Solution 2/6/14

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve the equation.

1)  $|x + 7| - 3 = 11$

A)  $\{-7, 7\}$

B)  $\{-1, 7\}$

C)  $\{-21, 7\}$

D)  $\{15, 7\}$

1) ☒ C

$|x+7|=14$

$x+7=14$

$x=7$

or  $x+7=-14$

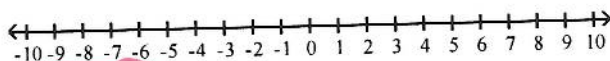
or  $x=-21$

Solve the inequality. Express your answer using interval notation. Graph the solution set.

2)  $|9x| < 36$

$-36 < 9x < 36$

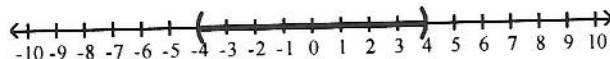
$-4 < x < 4$



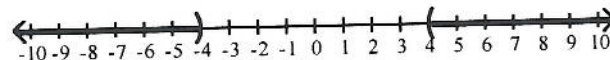
A)  $(-4, 4)$



B)  $(-4, 4)$



C)  $(-\infty, -4)$  or  $(4, \infty)$



D)  $(-\infty, 4)$

2) ☒ A

Find the zero of the linear function.

3)  $G(x) = -\frac{1}{8}x - 2$

A)  $-16$

B)  $\frac{1}{4}$

C) 16

D)  $-\frac{1}{4}$

$-\frac{1}{8}x - 2 = 0 \therefore -\frac{1}{8}x = 2$

$x = -16$

3) ☒ A

Solve the equation.

4)  $\left| \frac{1}{3}x - 7 \right| = 3$

A)  $\{12, 30, 0\}$

B)  $\{12\}$

C)  $\{30\}$

D)  $\{12, 30\}$

$\frac{1}{3}x - 7 = 3$  or  $\frac{1}{3}x - 7 = -3$

$\frac{1}{3}x = 10$

$x = 30$

$\frac{1}{3}x = 4$

$x = 12$

4) ☒ D

Solve the problem.

5) Suppose that  $f(x) = -x - 7$  and  $g(x) = x - 12$ .

(a) Solve  $f(x) = 0$ .

(b) Solve  $g(x) = 0$ .

(c) Solve  $f(x) = g(x)$ .

A) (a)  $x = -7$ ; (b)  $x = 12$ ; (c)  $x = 2.5$

C) (a)  $x = -7$ ; (b)  $x = 12$ ; (c)  $x = -9.5$

$$f(x)=0 \rightarrow -x-7=0 \quad \boxed{x=-7}$$

$$g(x)=0 \rightarrow x-12=0 \quad \boxed{x=12}$$

5) A

B) (a)  $x = -7$ ; (b)  $x = -12$ ; (c)  $x = 2.5$

D) (a)  $x = 7$ ; (b)  $x = 12$ ; (c)  $x = 2.5$

$$f(x)=g(x) \quad \boxed{x=5/2=2.5}$$

$$-x-7=x-12 \quad 2x=5$$

Use factoring to find the zeros of the quadratic function. List the x-intercepts of the graph of the function.

6)  $f(x) = x^2 + 5x - 50$

A)  $x = 10, x = -5$

B)  $x = 10, x = 5$

C)  $x = -10, x = 1$

D)  $x = -10, x = 5$

6) D

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

$$\boxed{x=-10, 5}$$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Solve the problem. Write in the form  $a + bi$

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

7)  $48 - 4i$

$$42 + 14i - 18i - 6i^2$$

$$42 + 6 - 4i = \boxed{48 - 4i}$$

8)  $(4 + 7i) / (3 + 5i)$

$$\frac{(4+7i)}{3+5i} \cdot \frac{(3-5i)}{3-5i} = \frac{12+21i-20i-35i^2}{9+25} = \frac{47+i}{34}$$

8)  $\frac{47}{34} + \frac{1}{34}i$

Solve the equation.

9) Bonus  $|8x| = 4x^2$

9)  $x=0, 2, -2$

$$8x = 4x^2 \text{ or } 8x = -4x^2$$

$$8x - 4x^2 = 0$$

$$8x + 4x^2 = 0$$

$$4x[2-x] = 0$$

$$4x[2+x] = 0$$

$$\boxed{x=0, 2}$$

$$\boxed{x=0, -2}$$