$(x+3)(x-2)$ $x^2 + x - 6$

$-2x + 3x$

Chapter 4 Mid-Chapter Practice Test

SCORE _____

(Lessons 4-1 through 4-4)

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

Part I Write the letter for the correct answer in the blank at the right of each question.
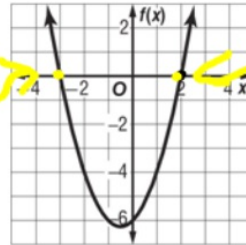
1. Which function is graphed?

   A $f(x) = x^2 - x - 6$

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

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

   D $f(x) = (x - 2)^2$

   -3 2

   $3x - 1 = 0$
   $+1 \ +1$

   c

   1. _____

2. By the Zero Product Property, if $(3x - 1)(x + 5) = 0$, then .

   $3x = \frac{1}{3}$ $x + 5 = 0$

   $\frac{1}{3}, -5$

   2. _____

3. Write a quadratic equation with 7 and $-\frac{5}{2}$ as its roots. Write the equation in the form $ax^2 + bx + c = 0$, where a, b, and c are integers.

3. Write a quadratic equation with 7 and $-\frac{5}{2}$ as its ~~roots~~ **zeros**. Write the equation in the form $ax^2 + bx + c = 0$, where a, b, and c are integers.

$$(x-7)\left(x+\frac{5}{2}\right) = 0$$

$$(x-7)(2x+5) = 0$$

$$2x^2 + 5x - 14x - 35 = 0$$

$$2x^2 - 9x - 35 = 0$$

4. The current in one part of a series circuit is $3 - 2j$ amps. The current in another part of the circuit is $3 - 6j$ amps. Find the total amps in the circuit.

$$(3-2j) + (3-6j)$$

5. Solve $x^2 + 5x = -5$. If exact roots cannot be found, state the consecutive integers between which the roots are located.

~~A.~~

C between -4 and -3; between -2 and -1
D between -5 and -4; between -2 and -1

3. _____

4. $6 - 8j$ _____

$$9 - 15 + 5 = -1$$

$$16 - 20 + 5 = 1$$

$$25 - 25 + 5 = 5$$

$$x^2 + 5x + 5 = 0$$

sign change

x	-3	-4	-5
y	-1	1	5

②

$(x-1)(x-3) = 0$

$x = 1, 3$

Max : 15

$a = -\frac{1}{2} \quad b = -4$

$x = \dfrac{-(-4)}{2\left(-\frac{1}{2}\right)} = \dfrac{4}{-1} = -4 \quad \begin{cases} -\frac{1}{2}(-4)^2 - 4(-4) - 9 \\ = -1 \end{cases}$
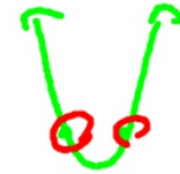
$\textbf{8} \quad x^2 - 3x - 40 = 0$

$(x - 8)(x + 5) = 0$

$x = 8, -5$

$\textbf{9} \quad 3x^2 + x = 0$

$x(3x + 1) = 0$

$x = 0 \qquad 3x + 1 = 0$

$3x = -1$

$x = -\dfrac{1}{3}$

8. $x^2 - 3x = 40$

9. $3x^2 = -x$

8. _____

(10)

$$\frac{4i}{2+2i} = \frac{2i(1-i)}{(1+i)(1-i)}$$

$$(a+b)(a-b) = a^2 - b^2$$

$$i^2 = -1$$

$$= \frac{2i - 2i^2}{1 - i^2} = \frac{2i - 2(-1)}{1 - (-1)} = \frac{2i + 2}{2}$$

8. $x^2 - 3x = 40$ 9. $3x^2 = -x$ 8. _____