

Quiz 7

15 October 2009

Show all work to support your solutions. Be sure to check your solutions.

1. (3 Points) Determine if the graph of the following equation has symmetry with respect to the origin, x -axis, or y -axis.

$$2x^4 + 3 = y^2 + xy$$

y -axis ($x \mapsto -x$)	x -axis ($y \mapsto -y$)	origin ($x, y \mapsto -x, -y$)
$2(-x)^4 + 3 = y^2 + (-x)y$	$2x^4 + 3 = (-y)^2 + x(-y)$	$2(-x)^4 + 3 = (-y)^2 + (-x)(-y)$
$2x^4 + 3 = y^2 - xy$	$2x^4 + 3 = y^2 - xy$	$2x^4 + 3 = y^2 + xy$
not sym w.r.t. y -axis	not sym w.r.t. x -axis	sym w.r.t. origin

2. (4 Points) Express in the rectangular form $a + bi$.

$$\frac{5 - 3i}{4 + 3i}$$
$$= \frac{5 - 3i}{4 + 3i} \cdot \frac{4 - 3i}{4 - 3i} = \frac{20 - 15i - 12i - 9}{16 + 9} = \frac{11 - 27i}{25} = \frac{11}{25} - \frac{27}{25}i$$

3. (3 Points) Solve for x .

$$2x^2 + 1 = 5x$$

$$2x^2 - 5x + 1 = 0$$

$$x = \frac{-(-5)}{2(2)} \pm \frac{1}{2(2)} \sqrt{(-5)^2 - 4(2)(1)} = \frac{5}{4} \pm \frac{1}{4} \sqrt{25 - 8} = \frac{5}{4} \pm \frac{1}{4} \sqrt{17}$$