

Name: _____

Period: _____

Row: ____ Seat: ____

MPS22 EXAM 5 PRACTICE TEST

SHOW ALL WORK. Give exact answers unless indicated otherwise. Place a box around your final answers.
Point values are given in brackets.

1. A complex number is given by $-2\sqrt{3} - 2i$. [15]
- (a) Express the number in trigonometric form. (b) Use DeMoivre's Theorem to find $(-2\sqrt{3} - 2i)^6$ and express the result in $a + bi$ form.

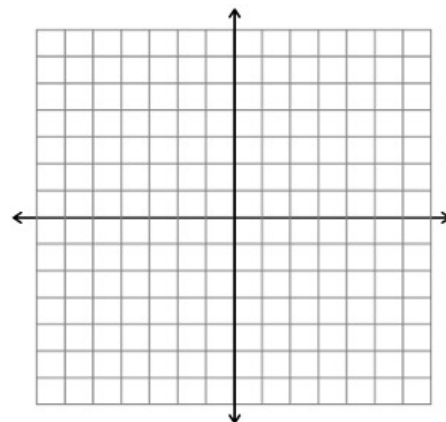
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2. Find all complex sixth roots of 4096. Leave your answer in trigonometric form. [12]

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3. Given the complex numbers $z_1 = 6\left(\cos \frac{2\pi}{3} + i \sin \frac{2\pi}{3}\right)$ and $z_2 = 2\left(\cos \frac{\pi}{3} + i \sin \frac{\pi}{3}\right)$. [10]
- Find, in trigonometric form:
- (a) $z_1 \cdot z_2$ (b) $\frac{z_1}{z_2}$

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4. Given each equation, identify its graph as one of the following: [15]
ellipse, circle, hyperbola, parabola, line, or a point.
- (a) $3x^2 + 4y^2 = 25$ _____
- (b) $3x^2 - 4y^2 = 25$ _____
- (c) $3x^2 - 4y = 25$ _____
- (d) $3x - 4y = 25$ _____
- (d) $3x^2 + 3y^2 = 25$ _____
- (e) $3x^2 + 4y^2 = 0$ _____

5. Given the equation of the ellipse: $\frac{(x-2)^2}{9} + \frac{(y+2)^2}{4} = 1$. [20]

- (a) Sketch the graph of the equation on the axes below.
- (b) State the coordinates of the vertices.
- (c) State the coordinates of the foci.
- (d) State the eccentricity of the ellipse



6. Write an equation of the parabola whose focus is $(2,-1)$ and with directrix $x = -2$. [12]

7. Convert to standard form and graph the equation $y^2 - 4x^2 - 2y + 24x - 51 = 0$. [16]

