

**Time Limit:** 4 minutes

**Instructions:** Calculator allowed. Closed book. Closed notes.

Instructions for all quizzes: **Do not discuss any aspect of this quiz with other midshipmen until after 6th period.**

Print your last name above. Also, fill in the bubble for your section.

Fill the bubble for the correct answer. Also, write your answers in any blanks provided.

Your work will not be graded unless the instructions request you show your work.

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1. Which curves arise as ( $x$ -,  $y$ -, or  $z$ -) traces for the surface

$$z = x^2 + 4y^2?$$

Give **all** correct answers.

circles    (non-circular) ellipses    parabolas    hyperbolas    intersecting lines

2. Identify each surface.

(a)  $z = x^2 + 4y^2$

ellipsoid    paraboloid    hyperboloid of 1 sheet    hyperbolic paraboloid    cone

(b)  $\langle 1, 1, 0 \rangle \cdot \langle x^2, y^2, z^2 \rangle = 15$

sphere    (non-spherical) ellipsoid    cone    plane    cylinder