

MATH 518
EXERCISES 2

A. ZEYTIN

1. Parametrize the following curves paying attention to orientation and calculate their length.
 - ▶ the straight line segment from $(2, 3)$ to $(-1, 4)$
 - ▶ the straight line segment from $(3, 7)$ to $(4, 3)$
 - ▶ the portion of the circle $x^2 + y^2 = 9$ going counterclockwise from $(0, -3)$ to $(0, 3)$
 - ▶ the portion of the circle $x^2 + y^2 = 9$ going counterclockwise from $(-3, 0)$ to $(3, 0)$
 - ▶ the portion of the circle $x^2 + y^2 = 9$ going clockwise from $(0, -3)$ to $(0, 3)$
 - ▶ the portion of the circle $x^2 + y^2 = 9$ going clockwise from $(-3, 0)$ to $(3, 0)$
 - ▶ the portion of the circle $(x - 1)^2 + (y - 2)^2 = 9$ going counterclockwise from $(1, -1)$ to $(1, 5)$
 - ▶ the portion of the circle $(x - 1)^2 + (y - 2)^2 = 9$ going counterclockwise from $(-2, 2)$ to $(4, 2)$
 - ▶ the portion of the circle $(x - 1)^2 + (y - 2)^2 = 9$ going clockwise from $(1, -1)$ to $(1, 5)$
 - ▶ the portion of the circle $(x - 1)^2 + (y - 2)^2 = 9$ going clockwise from $(-2, 2)$ to $(4, 2)$
 - ▶ the portion of the ellipse $4x^2 + y^2 = 1$ going counterclockwise from $(\frac{1}{2}, 0)$ to $(0, 1)$.
 - ▶ the portion of the ellipse $4x^2 + y^2 = 1$ going clockwise from $(\frac{1}{2}, 0)$ to $(0, 1)$.
 - ▶ the bottom half of the hyperbola $y^2 - x^2 = 4$ going from left to right.
 - ▶ The portion of the curve $y = x^3 - x$ going from $(1, 0)$ to $(24, 3)$.