

Directions: Show all work on a separate sheet of paper for full credit.

1. Use the arc length formula to find the length of the curve  $y = 2x - 5$ ,  $-1 \leq x \leq 3$ .
2. Use the arc length formula to find the length of the curve  $y = \sqrt{1 - x^2}$ ,  $0 \leq x \leq 1$ . Check your answer by noting that the curve is part of a circle.
3. Find the exact length of the curve.

(a)  $y = \frac{1}{4}x^2 - \frac{1}{2} \ln x$ ,  $1 \leq x \leq 2$

(b)  $y = \ln(\cos x)$ ,  $0 \leq x \leq \pi/3$

(c)  $y = 1 + 6x^{3/2}$ ,  $0 \leq x \leq 1$