# The Learning Centre
Calculus Readiness Practice Test

This practice test contains 7 questions. The actual test contains 25 questions.
The use of a calculator is not permitted.

Topics for this test include: geometry & measurement, graphs of functions, word problems & modeling, concept formation, numerical awareness, exponential functions, exponents & logarithms, equations & factoring, function notation, inequalities, absolute value, trigonometry.

1. Definition: A function is increasing on the interval $[a, b]$ if and only if $f(x_1) < f(x_2)$ whenever $x_1 < x_2$, where x_1 and x_2 are any numbers in $[a, b]$.
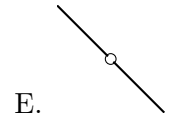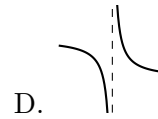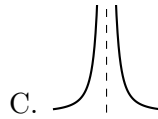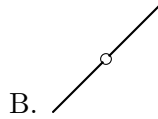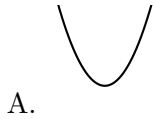   The function f, pictured in the graph below, is increasing on the interval:
   - A. $[1, 2]$
   - B. $[2, 3]$
   - C. $[3, 4]$
   - D. $[4, 5]$
   - E. none of these
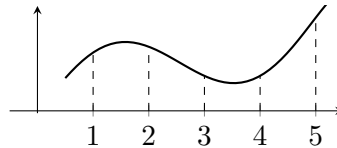
2. Given a rectangle with sides of length x and width y. Suppose the length x is doubled and the width y is halved. The new perimeter is:

   A. $4x + y$ B. $(2x)\left(\dfrac{y}{2}\right)$ C. $2x + \dfrac{y}{2}$ D. $x^2 + y$ E. $x^2 + \dfrac{y}{2}$

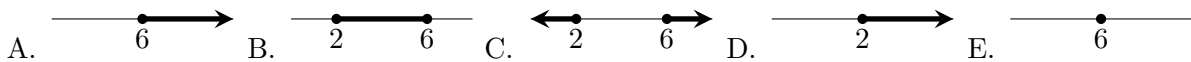3. Which of these curves best resembles the graph of $f(x) = \dfrac{(x - 2)(x + 3)}{(x + 3)}$

A.   B.   C.   D.   E.

4. If $f(x - 2) = \dfrac{x + 3}{x - 4}$, then $f(5) =$

   A. -6 B. $\dfrac{10}{3}$ C. 5 D. $\dfrac{23}{4}$ E. 8

5. If $\log_2 16 = 8 \cdot 2^{-x}$, then $x =$?

   A. -7 B. $-\dfrac{4}{3}$ C. -1 D. $-\dfrac{2}{3}$ E. 1
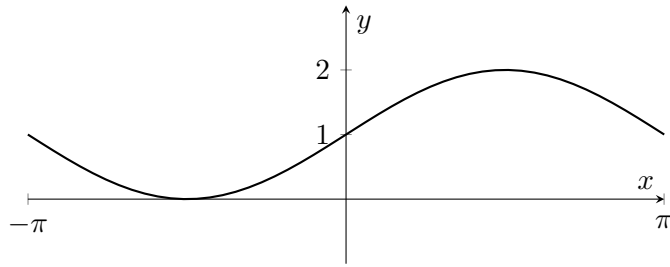
6. The graph representing $|x - 4| \geq 2$ is

A.   6   B.   2   6   C.   2   6   D.   2   E.   6

7. Which of these choices best describes the alteration made to the graph of the sine curve, $f(x) = \sin x$, for $-\pi \leq x \leq \pi$?

    A. The amplitude of the graph was doubled.

    B. The graph was shifted to the left π units.

    C. The period of the graph was decreased to π units.

    D. The graph was reflected about the $x-$axis.

    E. The graph was shifted up 1 unit.

Answers:

1. D   2. A   3. B   4. B   5. E   6. C   7. E