

Exam for the 2nd Secondary 2025 (October Exam)

Find the results of the following:

1. $\lim_{x \rightarrow 2} \frac{x^5 - 32}{x^2 + 3x - 10}$

2. Graph the function $f : f(x) = \frac{1}{x-2} + 1$ showing its domain, deduce the range, the monotony.

3. ABCDEF is a uniform hexagon, the forces of magnitudes 8, $6\sqrt{3}$, 5 and $4\sqrt{3}$ newton act on \overline{AB} , \overline{AC} , \overline{AD} , \overline{AE} respectively, find the magnitude and the direction of their resultant.

In the opposite figure :

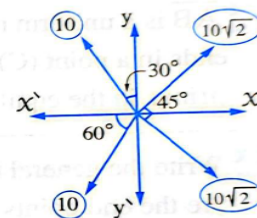
The resultant of the system of forces "R" = newton.

(a) 20

(b) $10\sqrt{2}$

(c) 10

(d) zero.



4.

In each of the following determine whether the function is one to one or not:

Choose the correct answer :

(1) $\lim_{x \rightarrow 3} \frac{x-3}{x^2-9} = \dots\dots\dots$

(a) 3

(b) $\frac{1}{9}$

(c) $\frac{1}{3}$

(d) $\frac{1}{6}$

(2) In the triangle ABC, $\cos A = \dots\dots\dots$

(a) $\frac{a^2 + b^2 - c^2}{2ab}$

(b) $\frac{a^2 + c^2 - b^2}{2ac}$

(c) $\frac{b^2 + c^2 - a^2}{2bc}$

(d) $\frac{c^2 - a^2 - b^2}{2ab}$

(3) ABC is a triangle in which $\frac{\sin A}{3} = \frac{2 \sin B}{5} = \frac{\sin C}{4}$, then $a : b : c = \dots\dots\dots$

(a) 6 : 5 : 8

(b) 8 : 5 : 6

(c) 7 : 2 : 4

(d) 3 : 5 : 6

(4) $\lim_{x \rightarrow \infty} \frac{\sqrt{x^2 + 3}}{2x + 1} = \dots\dots\dots$

(a) 1

(b) $\frac{3}{2}$

(c) $\frac{1}{2}$

(d) 3