6th September, 2020
Shift-2

EE24BTECH11063 - Y.Harsha Vardhan Reddy

SINGLE CORRECT

1) The angle of elevation of the summit of a mountain from a point on the ground is 45°. After climbing up one km towards the summit at an inclination of 30°from the ground, the angle of elevation of the summit is found to be 60°. Then the height (in km) of the summit from the ground is:

a) $\frac{1}{\sqrt{3}+1}$ b) $\frac{\sqrt{3}+1}{\sqrt{3}-1}$

c) $\frac{\sqrt{3}-1}{\sqrt{3}+1}$ d) $\frac{1}{\sqrt{3}-1}$

2) If the constant term in the binomial expansion of $\left(\sqrt{x}-\frac{k}{x^2}\right)^{10}$ is 405, then $|k|$ equals:

a) 1 b) 9 c) 2 d) 3

3) Let $z = x + iy$ be a non-zero complex number such that $z^2 = i|z|^2$,where $i = \sqrt{-1}$,then z lies on the
a) line, $y = x$
b) real axis
c) imaginary axis
d) line, $y = -x$

4) Let L denote the line in the xy-plane with x and y intercepts as 3 and 1 respectively. Then the image of the point $(-1,-4)$ in this line is:

a) $\left(\frac{11}{5},\frac{28}{5}\right)$ b) $\left(\frac{8}{5},\frac{29}{5}\right)$

c) $\left(\frac{29}{5},\frac{11}{5}\right)$ d) $\left(\frac{29}{5},\frac{8}{5}\right)$

5) Consider the statement: "For an integer n, if n^3-1 is even, then n is odd." The contrapositive statement of this statement is:
a) For an integer n, if n is even, then $n^3 - 1$ is even
b) For an integer n, if n is odd, then $n^3 - 1$ is even
c) For an integer n, if $n^3 - 1$ is not even, then n is not odd
d) For an integer n, if n is even, then $n^3 - 1$ is odd