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**2015 5** What are the asymptotes of  $y = \frac{3x}{(x+1)(x+2)}$ ? **1**

(A)  $y = 0, x = -1, x = -2$

(B)  $y = 0, x = 1, x = 2$

(C)  $y = 3, x = -1, x = -2$

(D)  $y = 3, x = 1, x = 2$

**A**

Firstly,  $\frac{3x}{(x+1)(x+2)} = \frac{3x}{x^2 + 3x + 2}$

$$\therefore \lim_{x \rightarrow \infty} \frac{3x}{x^2 + 3x + 2} = \lim_{x \rightarrow \infty} \frac{\frac{3}{x}}{1 + \frac{3}{x} + \frac{2}{x^2}}$$

$$= 0$$

$\therefore$  horizontal asymptote of  $y = 0$

Also, as  $(x+1)(x+2) = 0$

$$x = -1, -2$$

$\therefore$  vertical asymptotes of  $x = -1, x = -2$

$\therefore$  asymptotes are  $y = 0, x = -1, x = -2$ .

State Mean:

**0.72**

\* These solutions have been provided by [projectmaths](#) and are not supplied or endorsed by BOSTES.