
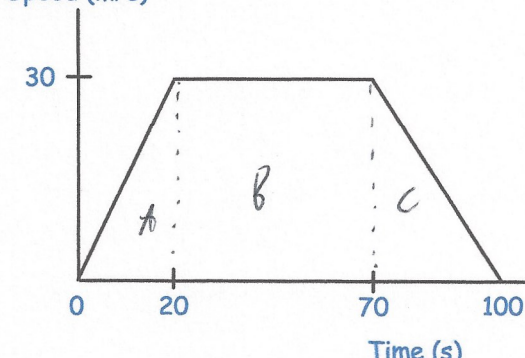


16th October		 Corbettmaths
<p>Given</p> $f(x) = 5x - 3$ $g(x) = 2x + 1$ $2(5x - 3) + 1$ $10x - 6 + 1$	<p>Find</p> $gf(x)$ $10x - 5$	
<p>Speed (m/s)</p>  <p style="text-align: center;">Time (s)</p> <p>The speed-time graph shows the speed of a train between two underground stations.</p>	<p>Calculate the distance between the stations</p> <p>A <math>\frac{1}{2} \times 20 \times 30 = 300 \text{ m}</math></p> <p>B <math>50 \times 30 = 1500 \text{ m}</math></p> <p>C <math>\frac{1}{2} \times 30 \times 30 = 450 \text{ m}</math></p> $2250 \text{ m}$	<p>Calculate the average speed for the journey</p> $s = \frac{d}{t} = \frac{2250}{100} = 22.5 \text{ m/s}$
<p>Solve</p> $\frac{2}{x+1} - \frac{10}{x+4} = -1$ $\frac{2(x+4) - 10(x+1)}{(x+1)(x+4)} = -1$	$2x + 8 - 10x - 10 = -(x+1)(x+4)$ $-8x - 2 = -(x^2 + 5x + 4)$ $-8x - 2 = -x^2 - 5x - 4$ $x^2 - 3x + 2 = 0$ $(x-1)(x-2) = 0$ $x = 1 \text{ or } x = 2$	
<p>Find the shortest possible distance between the line <math>y = 5x</math> and the point <math>(-3, 10)</math>.</p> $y = -\frac{1}{5}x + c$ $10 = -\frac{1}{5}x(-3) + c$ $10 = \frac{3}{5} + c$ $c = 9.4$	$5x = -\frac{1}{5}x + 9.4$ $5.2x = 9.4$ $x = \frac{47}{26} \quad y = \frac{235}{26}$ $\sqrt{\left(\frac{47}{26} - (-3)\right)^2 + \left(\frac{235}{26} - 10\right)^2}$ $= 4.903$	