

Challenge 2015 II

		Semicircular	Straight	Total
1)	D	① $\pi d = 46.8 \pi = 147$	183	
	S	4.9	② $183 \div 33.4 = 5.48$	
	T	② $147 \div 4.9 = 30$	④ 33.4	③ 63.4

Answer = 5.48 m/s

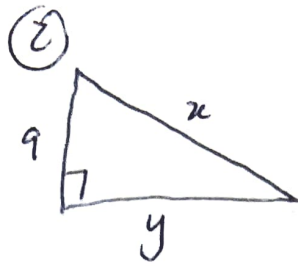
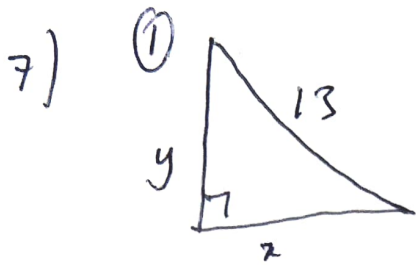
- 3)
- a) i) $13 - 3 \times 6 \div 2 = 4$ no brackets needed
 - ii) $5 - 2 \div (6 \div 3) = 4$
 - iii) $8 - 6 \div 2 \div 3 = 4$ not possible
 - iv) $(4 - 2) \div (3 \div 6) = 4$

5)	PU	SJ	SU	SQ
x	2x	2+7	40-4x-7	= 33-4x
7	4	6	8	
7x	8x	6x+42	264-32x	

a) $33 - 4x$ minutes

b) $7x + 8x + 6x + 42 + 264 - 32x = 306 - 11x$ calories

c) $306 - 11x = 240$
 $66 = 11x$
 $x = 6$



① $x^2 + y^2 = 169$

② $81 + y^2 = x^2$

① - ② $x^2 - 81 = 169 - x^2$

$2x^2 = 250$

$x = 5\sqrt{5} (= 11.2)$

$y^2 = 169 - (5\sqrt{5})^2$
 $y^2 = 44$
 $y = 2\sqrt{11} (= 6.63)$

9) Initial population = g

$g \times 0.68 \times x^3 = 0.93g$

$x^3 = \frac{0.93}{0.68}$

$x = 1.11$

11% increase.

www.tutorofmaths.com