

Mark Scheme
Mathematics Paper 3
Thursday 24th November 2022

Year 10 : Fourth Form

Answer 1

(i) $0.5 \times 10 \times 12 = 60$ metres

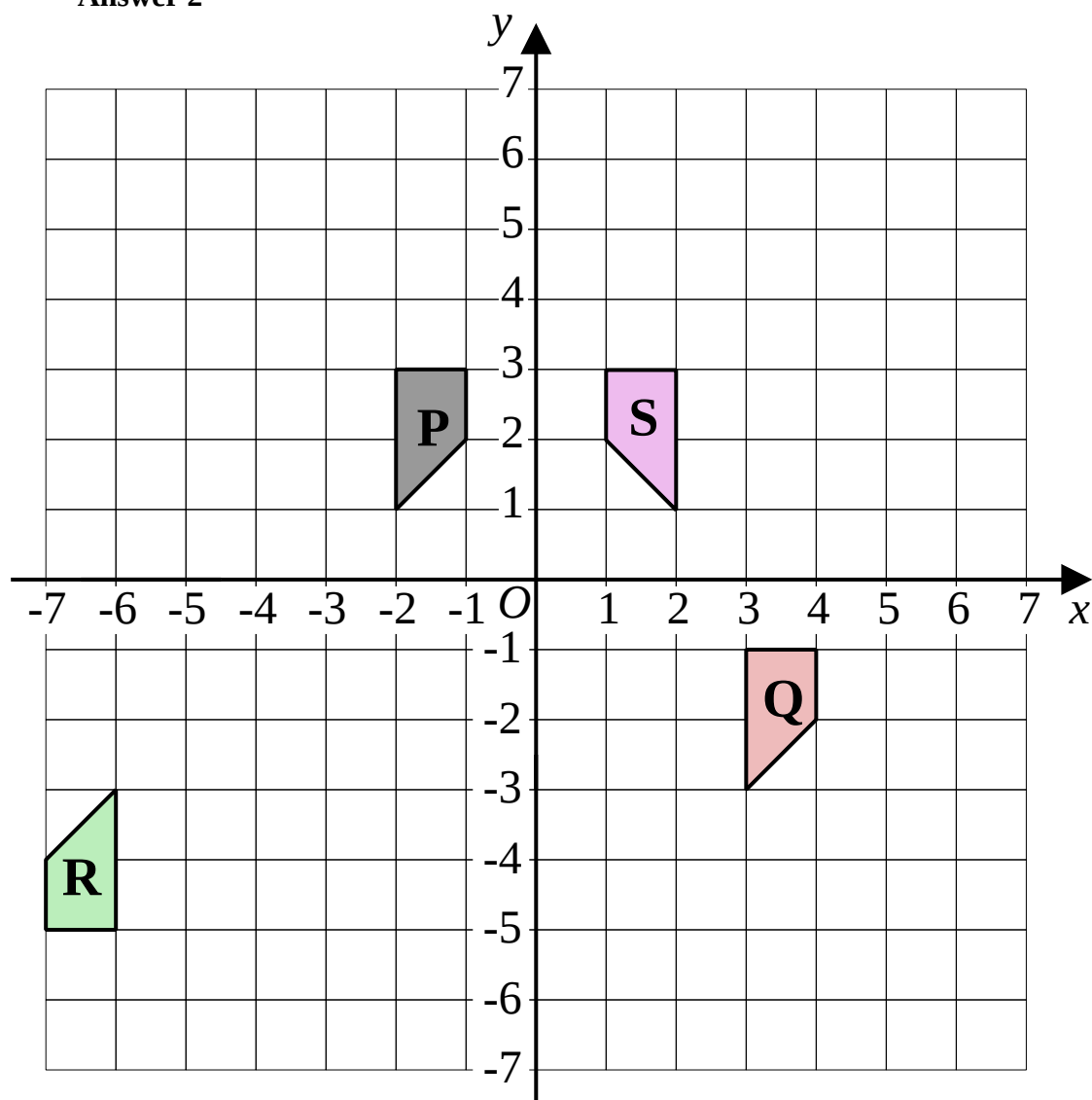
(ii) $20 \times 12 = 240$ metres

(iii) $60 + 240 + 180 = 480$ metres

(iv)
$$\begin{aligned} \text{Average speed} &= \frac{\text{total distance}}{\text{total time}} \\ &= \frac{480}{60} \\ &= 8 \text{ m s}^{-1} \end{aligned}$$

[1, 1, 1, 2 marks]

Answer 2



[2, 2, 1 marks]

Answer 3**(a)**

		5-sided spinner				
		1	2	3	4	5
4-sided spinner	1	2	3	4	5	6
	2	3	4	5	6	7
	3	4	5	6	7	8
	4	5	6	7	8	9

[1 mark]

(b) (i) $p(3) = \frac{2}{20} = \frac{1}{10}$ (or 0.1)

[1 mark]

(ii) $p(\geq 5) = \frac{14}{20} = \frac{7}{10}$ (or 0.7)

[1 mark]**Answer 4**

(i) 6 km $\equiv$ 6000 metres

[1 mark]

(ii) 40 minutes $\equiv$ 2400 seconds

[1 mark]

(iii)

$$\begin{aligned}
 speed &= \frac{distance}{time} \\
 &= \frac{6000}{2400} \\
 &= 2.5 \text{ m s}^{-1}
 \end{aligned}$$

[1 mark]**Answer 5**

{ 1, 8, 9 }

[2 marks]**Answer 6**Let the probability of taking a black disc be x

$$p(\text{red}) + p(\text{black}) + p(\text{white}) = 1$$

$$0.6 + x + x = 1$$

$$2x = 0.4$$

$$x = 0.2$$

[2 marks]**Answer 7**Translation by $\begin{pmatrix} 4 \\ -3 \end{pmatrix}$ **[2 marks]**

Answer 8

(i) $p(\text{win}, \text{win}) = 0.7 \times 0.7$
 $= 0.49$

[2 marks]

(ii) Easy method is $1 - \text{part (i) answer}$
 $= 1 - 0.49$
 $= 0.51$

[2 marks]

Answer 9

(i) Get the data in order;
11 12 **13** 13 16 **17** 17 18 **19** 19 20
$$\frac{11 + 1}{4} = 3$$

Lower Quartile is 13

Upper Quartile is 19

Interquartile range is 6

[3 marks]

(ii) James has the more consistent marks as his interquartile range is lower indicating that his marks are less spread out.

[1 mark]