

Maths Paper

Marking Scheme

1

(a) Orders the numbers to at least the sixth number from either end

1 2 2 3 4 5 (... ..)

or

8 6 5 5 5 4 (... ..)

(... ..) 5 4 3 2 2 1

or/

(... ..) 4 5 5 5 6 8

or

4 and 5 indicated

$$\text{or } \frac{4+5}{2}$$

M1

4.5 with no errors in working

$$\text{oe eg } 4\frac{1}{2}$$

A1

Additional Guidance

4/5

M1A0

4,5 (cannot accept as 4.5)

M1A0

Allow 4 and 5 to be the only ones not crossed out as '4 and 5 indicated'

M1

eg 1 2 2 3 4 5 5 6 6 8 and answer 4.5 (error in ordering)

M1A0

eg 1 2 3 3 4 5 5 5 6 8 and answer 4.5 (error in ordering)

M1A0

Ignore any + signs between ordered values unless the total is then calculated and used in this part

(b) $(5 + 6 + 1 + 3 + 5 + 5 + 8 + 4 + 2 + 2) \div 10$

or $41 \div 10$

Allow one value omitted or incorrect if method clear

M1

$$4.1 \text{ or } 4\frac{1}{10}$$

A1

Additional Guidance

Answer of 4 with correct working or 4.1 seen

M1A1

Answer of 4 without correct working and without 4.1 seen

M0A0

Condone missing first and/or final bracket for M1

If their total is not 41, all additions must be shown or implied

eg they write $5 + \dots + 2 = 42$ and $42 \div 10$

eg they write $5 + 6 + 1 + \text{etc} = 24$ and $24 \div 10$

M1A0

(both clearly implying that they are adding up all the numbers – minimum is two of the values shown as being added)

but, for example, $42 \div 10$ (no other working)

M0

Method mark could be scored for work at top of page, above, but not in, part (a)

It cannot be assumed that work done in part (a) is intended for part (b)

Answer of $\frac{41}{10}$ or $\frac{4.1}{1}$ or 4 r(emainder) 1

M1A0

[4]

2

(a) $120 + 90 + 120 + 90$
oe

M1

420

A1

(b) 120×90 or 10 800

M1

their $10\ 800 \times 4.15$

M1

44 820

A1

45 000

ft if cost > 500 seen and correctly rounded to nearest 1000

B1ft

[6]

3

- (a) $280 \div 4$ M1
- Kiwi = 70 A1
- Yogurt = 210
- ft 280 – their 70. Allow their 70×3 if M1 awarded*

SC1 for 35 and 105

A1ft

- (b) $72 \times \frac{30}{100}$ (= 21.6) M1
- 72 + their 21.6 or 22 M1 Dep
- 93.6 or 94 A1
- 94 pence or £0.94
- Strand (i) – Correct money notation*
- ft their 93.6 rounded to nearest integer* Q1

Alternative

- 1.3 seen M1
- 72×1.3 M1
- 93.6 or 94 A1
- 94 pence or £0.94
- Strand (i) – Correct money notation*
- ft their 93.6 rounded to nearest integer*
- SC3 for 93p with no working* Q1

[7]

4

$24 \div 6 (= 4)$ M1

Their $4 \times 5 (= 20)$ M1

20 : 4 or 4 : 20 is M1 M1

Their $20 \times 5.6(0) (= 112)$

and

Their $4 \times 6.2(0) (= 24.8(0))$

Dep on gaining at least one of the previous M marks

M1Dep

Their $112 +$ their $24.8(0)$

M1

136.80

136.8 is M4 A0

SC2 820.80

SC1 820.8

A1

Alternative

$5 \times 5.6(0) (= 28)$ M1

Their $28 + 6.2(0) (= 34.2(0))$ M1

Their $34.2(0) \div 6 (= 5.7(0))$
 $24 \div 6 (= 4)$ M1

Their $5.7(0) \times 24$

Dep on 3rd M1

Their $4 \times$ their $34.2(0)$

M1Dep

136.80

136.8 is M4 A0

SC2 820.80

SC1 820.8

A1

[5]

5 (a) $130 - 25$ or 105 M1

$25 \div 50$
or 0.5 or 30 minutes
oe M1

their $105 \div 70$ or 1.5 or
 1 hour 30 minutes or 90 minutes
Dependent on 1st M1 or subtracting 25 from their distance
oe M1dep

2 hours or 120 minutes A1

(b) (The journey will) take longer
oe B1

Additional Guidance
More time B1
(The journey will) be slower B0

[5]

6 $3x + 4x + 5x + 6x (= 360)$
oe M1

$18x = 360$
Collecting terms and setting up equation M1dep

20 A1

[3]

7 . **Alternative method 1 – width of small rectangle is x (any letter)**

x and $2x$ or $x + 2x + x + 2x$ or $6x$
oe M1

$x + 2x + x + 2x = 15$
or $6x = 15$
oe M1dep

$$(x =) 2.5$$

from correct working or with 5 as the other dimension or with 7.5 as the length of the large rectangle

A1

25

ft 10 × their 2.5 with M1M1 awarded

A1ft

Alternative method 2 – length of small rectangle is x (any letter)

$$x \text{ and } \frac{x}{2} \text{ or } x + \frac{x}{2} + x + \frac{x}{2} \text{ or } 3x$$

oe

M1

$$x + \frac{x}{2} + x + \frac{x}{2} = 15$$

oe

M1dep

$$(x =) 5$$

from correct working or with 2.5 as the other dimension or with 7.5 as the length of the large rectangle

A1

25

ft 5 × their 5 with M1M1 awarded

A1ft

Alternative method 3 – a = width of small rectangle and b = length of small rectangle (any letters)

$$b = 2a$$

or

$$10a \text{ or } 5b$$

correct expression for perimeter of the large rectangle in one variable

M1

$$6a = 15$$

or

$$3b = 15$$

correct equation in one variable

M1dep

$$(a =) 2.5 \text{ or } (b =) 5$$

from correct working or with both values correct or with one value correct and 7.5 as the length of the large rectangle

A1

25

ft 10 × their a or 5 × their b with M1M1 awarded

A1ft

Alternative method 4 – trial and improvement using ratio of sides

length = 2 × width seen or implied

M1

Two correctly evaluated trials for perimeter of small rectangle with length = 2 × width

eg

$$8 + 4 + 8 + 4 = 24$$

$$\text{and } 10 + 5 + 10 + 5 = 30$$

M1dep

2.5 and 5

$$\text{implied by } 2.5 + 5 + 2.5 + 5 = 15$$

A1

25

A1

Addition 12×6 or 72

Note that

oe

area of rectangle

M1

In all methods, marks can be awarded for annotation of the diagram, with lengths clearly identified, or working inside or alongside the diagram

eg 2.5 and 5 marked correctly as the dimensions of the small rectangle

M1M1A1

2.5 marked as the width of the small rectangle and 7.5 marked as the length of the large rectangle

M1M1A1

If full marks not awarded, mark both the diagram and working then award the better mark

In alt 4, one or more trials may be crossed out to indicate that they do not give the correct perimeter. Do not treat this as the usual crossed out work not to be marked if replaced.

[4]

8

12×6 or 72

oe

area of rectangle

M1

$$\pi \times 6^2 \text{ or } 36\pi$$

or [113, 113.112]

oe

may be implied

eg $\pi \times 6^2 \div 4$ or 9π or [28.2, 28.3]

M1

$$\pi \times 6^2 \div 2$$

or 18π or [56.4, 56.6]

oe

dep on 2nd M1

M1dep

[15.4, 15.5]

or $72 - 18\pi$

A1

Additional Guidance

$$72 - 18\pi = 54\pi$$

M1M1M1A0

$\pi \times 6^2 \div 2$ scores 2nd and 3rd M1

$$12 \times 6 = 72$$

$72 \div 2 = 36$ (unless identified as half of rectangle)

(1st) M0

$\pi \times 6^2$ scores 2nd M1 even if subsequently used incorrectly

eg $\pi \times 6^2 = 36\pi$

$$36\pi \times 2 = 72\pi$$

(2nd) M1

Ignore units throughout

[4]