

SECTION A

MARKING SCHEME

1(a) $2\% \times 1550 = \$31$ M₁

$\$205 + (\$31)$ M₁

$= \$236$ A₁

(ii) $\$3,90 + \$1,65 + \$4,50$
 $= \underline{\$10,05}$ M₁

* $\$236 - \$10,05$ M₁
 $= \underline{\$225,95}$ A₁

(b) $180(n-2) = 2 \times 360$ M₁

or equivalent

$n = 6$ sides A₁

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2(a) $6x - 2x = 8 + 2$ M₁

$x = 2\frac{1}{2}$ or 2,5 A₁

b(i) $5(h-2k)(h+2k)$ B3

-1 each error

After B0SB1 for

$5(h^2 - 4k^2)$

or $(5h-10k)(h+2k)$

or $(h-2k)(5h+10k)$

(ii) $m(2p-1) - 3n(2p-1)$ M₁
 $= (2p-1)(m-3n)$ equiv A₁

(c) $\frac{3(x+y) - 2(x-y)}{(x+y)(x-y)}$ M₁

$= \frac{3x+3y - 2x+2y}{(x+y)(x-y)}$ M₁

$= \frac{x+5y}{(x+y)(x-y)}$ A₁

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3(a) $14 + 15$ M₁
 $= \underline{29 \text{ (minutes)}}$ A₁

(b) 1 week 5 days B1

(c) 4,5 seen M₁
 $2 \times 5 \times 4,5$ M₁
 $= \underline{45 \text{ (km)}}$ A₁

d(i) Subtract equiv. M₁
 $45200000 - 8700000$ seen
 $= \underline{3,65 \times 10^7}$ A₁

(ii) $\frac{40}{100} \times 8700000$ equiv. M₁
 $= \underline{3480000}$ A₁

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$$4(a) \quad \frac{0,6}{0,012} \text{ or equiv } M_1$$

$$= \underline{\underline{50}} \quad A_1$$

$$(b) \quad 23 \text{ or } 10111_2 \text{ seen } M_1$$

$$32 \text{ or } 10111_2 + 1001_2 \quad M_1$$

$$= \underline{\underline{100\,000_2}} \quad A_1$$

$$(c) \quad \text{either } 14,5 \text{ or } 11,5 \text{ seen } M_1$$

$$14,5 \times 11,5 \quad M_1$$

$$= \underline{\underline{166,75 \text{ (m}^2)}} \quad A_1$$

$$(d) \quad 0,00312 + 0,00045 \quad M_1$$

$$= \underline{\underline{3,57 \times 10^{-3}}} \quad A_1$$

$$(ii) \quad (3,12 \times 10^{-3}) \times (4,5 \times 10^{-4})$$

$$= 14,04 \times 10^{-7} \quad M_1$$

$$= \underline{\underline{1,404 \times 10^{-6}}} \quad A_1$$

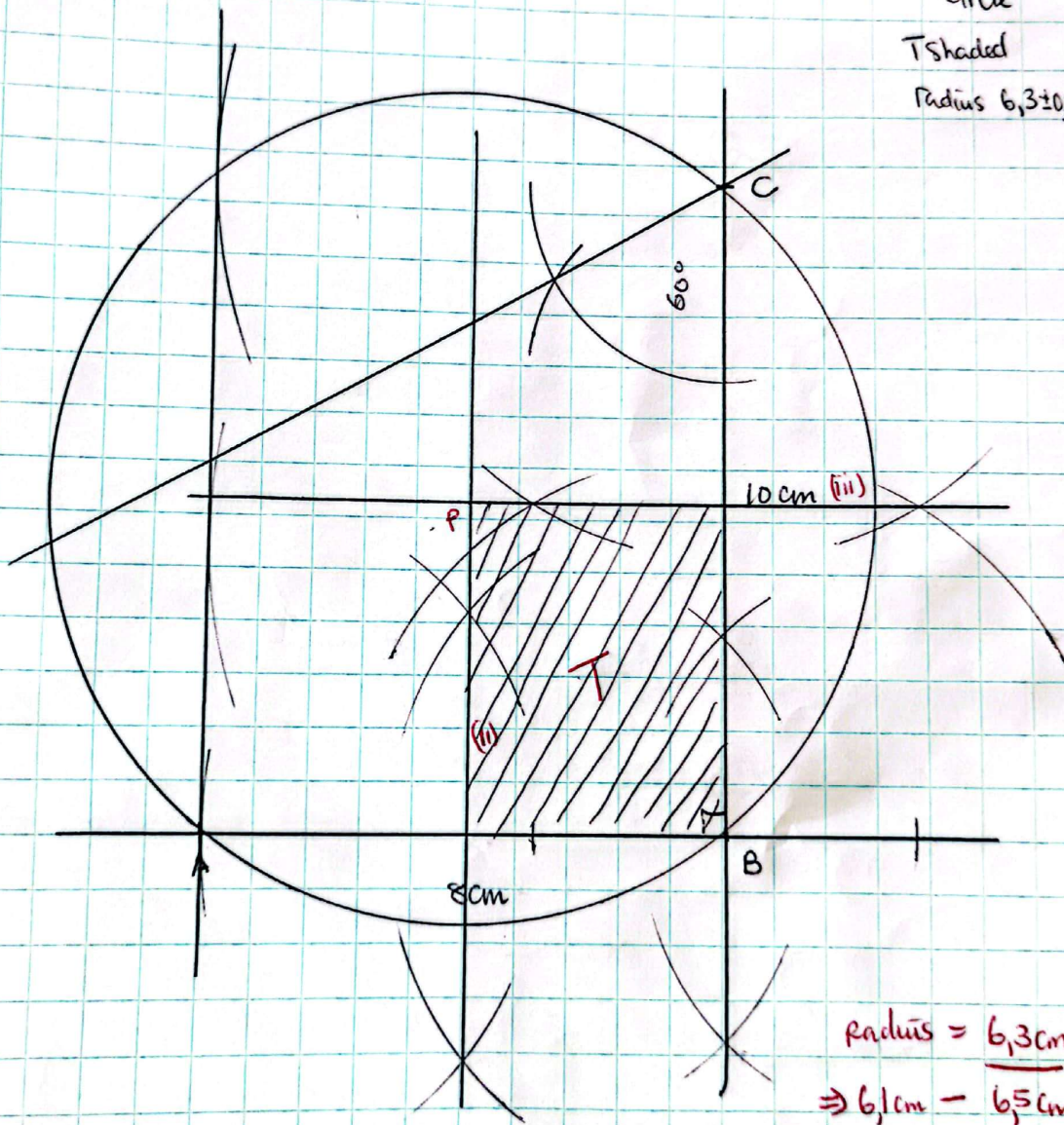
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Qn 5

Quadrilateral ABCD

- 10cm ($\pm 0,2cm$)
- $60^\circ; 90^\circ (\pm 2^\circ)$
- Correct construction arcs for their AD parallel to BC.

- 90° L1 C1
- 60° L1 C1
- Quad. Q1
- Bisector AB B1
- Bisector BC B1
- Point P B1
- Circle B1
- T shaded B2
- Radius $6,3 \pm 0,2$ B1



$$\text{radius} = 6,3cm \pm 0,2cm$$

$$\Rightarrow 6,1cm - 6,5cm$$

SECTION B

6a(i)

$X = \{2; 3; 5; 7; 11; 13; 17; 19\}$ B2
-1 each error

(ii) $n(Z) = 4$ B1

(iii) $n(Y \cup Z) = 12$ B1

(iv) $P = X' \cap Y \cap Z$ B2
after B1, SCB1 for $Y \cap Z$

6(i) $-3 < 2x+1 \leq 7$
 $-3 < 2x+1$ or $2x+1 \leq 7$ M1
 $-3-1 < 2x$ or $2x \leq 7-1$ M1
 $-2 < x$ $x \leq 3$ A1

$-2 < x \leq 3$ A1

(i) $\{-1; 0; 1; 2; 3\}$ B2
-1 each error

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7a(i) $2x-3=5$ M1

$x=4$ A1

(ii) $\frac{1}{5} \begin{pmatrix} 2 & -3 \\ -1 & 4 \end{pmatrix}$ B2
their (4)

SCB1 for $\frac{1}{5} \begin{pmatrix} a & b \\ c & d \end{pmatrix}$

(b) $-5y=10$ or $5x=15$ M1

$x=3$ A1

$y=-2$ A1

(i) Angle in a semi-circle B1
 or equiv.

(ii) $\hat{QSR} = 56^\circ$ M1 A1
90-34

(iii) $\hat{STP} = 112^\circ$ M1 A1
180-68

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(9) (a)(i) 8; 4; 4 B2

-1 each error

(ii) any 3 correct midpoints M1

$\left(\frac{0+2}{2}\right) \times 20 + \left(\frac{2+3}{2}\right) \times 25 + \left(\frac{3+4}{2}\right) \times 19 + \left(\frac{4+5}{2}\right)$

$\times \text{their } 8 + \left(\frac{5+6}{2}\right) \times \text{their } 4 + \left(\frac{6+8}{2}\right) \times \text{their } 4 = 80$

M1

$= 3$ hours. A1

(iii) 2, 8 or $2\frac{4}{5}$ (hours) B2

(iv) $\frac{3k}{632L} = \frac{6}{80} \times \frac{5}{79}$ or equiv M1

$= \frac{3k}{63k} \mid 0,0047$ A1

(b) 0,5 ; 1 ; 3 B3
 → each error.

After B0 award SCB1 for
 for correct method of
 calculating freq. density.

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(10) ai) $\vec{AS} = \underline{b}$ B1

(ii) $\vec{OS} = 2\underline{a} + \underline{b}$ B1

(iii) $\vec{OR} = 2\underline{b} + \underline{a}$ B1

(iv) $\vec{AR} = 2\underline{b} - \underline{a}$ B1

b) $\vec{OT} = 2\underline{a} + 2\underline{b} - h\underline{a}$ M1

$= (2-h)\underline{a} + 2\underline{b}$ A1

c) $\vec{OT} = k(2\underline{a} + \underline{b})$ B1

(d) $2k\underline{a} + k\underline{b} = (2-h)\underline{a} + 2\underline{b}$ M1

$2k = 2-h$ or $k = 2-h$ M1

$h = \frac{2}{5} / 0,4$ A1 $k = \frac{4}{5} / 0,8$ A1

(e) $\frac{3}{5}$ or 0,6 or 3:5 B1

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 (a) $2^5 \times 3^3 \times 5^2 \times 7^3$ B1

k(i) $30u - 124 - 124$ M1

$= \underline{6u}$ A1

(ii) $\frac{33}{8} \times \frac{4}{11} \times \frac{3}{2}$ M1

$= \underline{\underline{\frac{9}{40}}}$ A1

(fi) $\frac{48}{60} \times 100$ M1

$= \underline{\underline{80\%}}$ A1

(ii) $\sqrt{29 \times 10^2 - 1}$ M1

$= \underline{\underline{1,7 \times 10^{11}}}$ A1

(h) 35 or 65 seen. M1

$= 100_{(10)}$ M1

$= \underline{400_{(5)}}$ A1

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x	-4	-3	-2	-1	0	1	2	3
y	9	p	-1	-3	q	-1	3	9

p = 3

q = -3

$p=3 \quad q=3$

B1 B1

P3 C1

line drawn $x = -\frac{1}{2}$

B1

Equation $x = -\frac{1}{2}$

B1

$(-\frac{1}{2}; 3; (2; 3))$

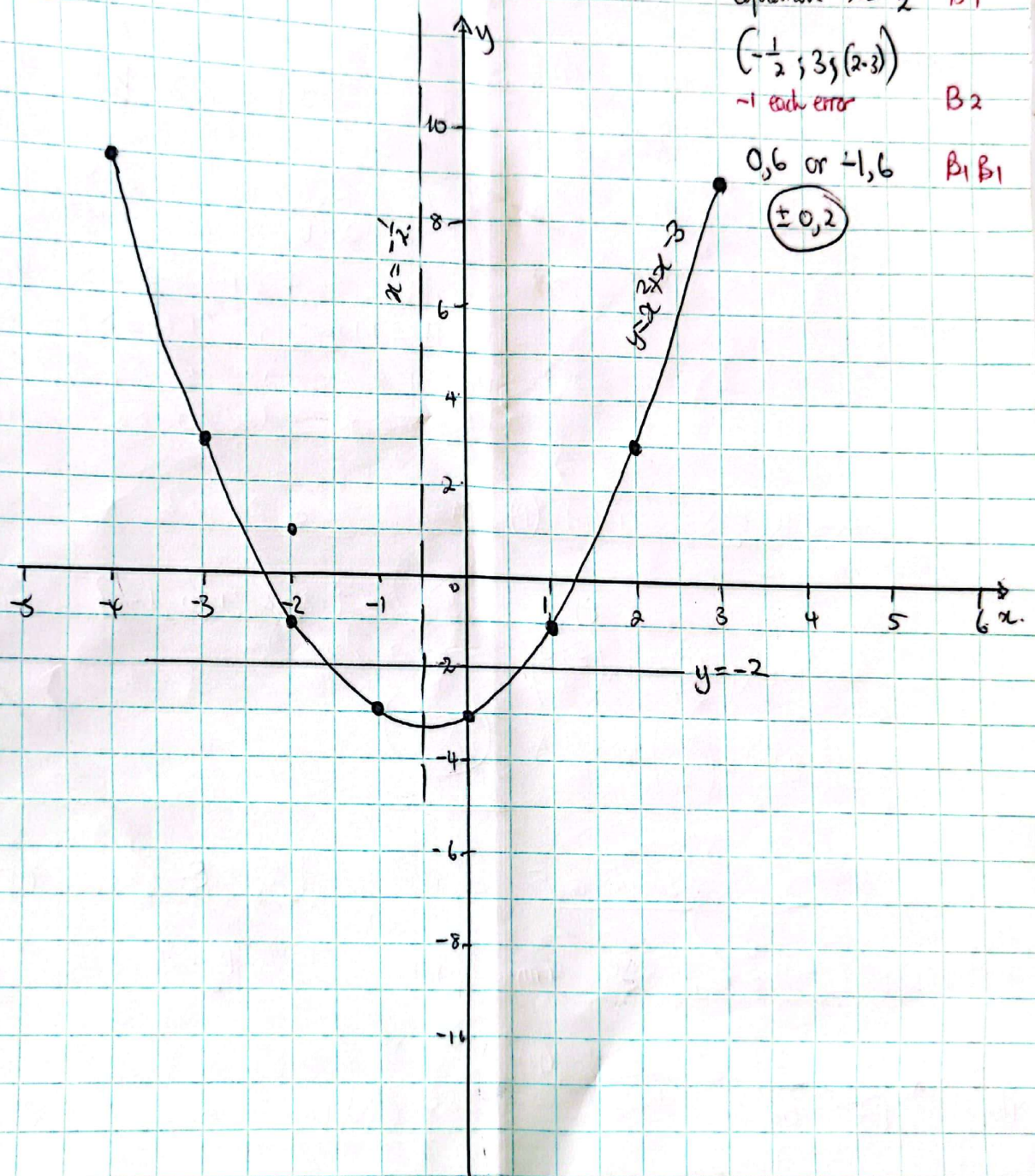
-1 each error

B2

0,6 or -1,6

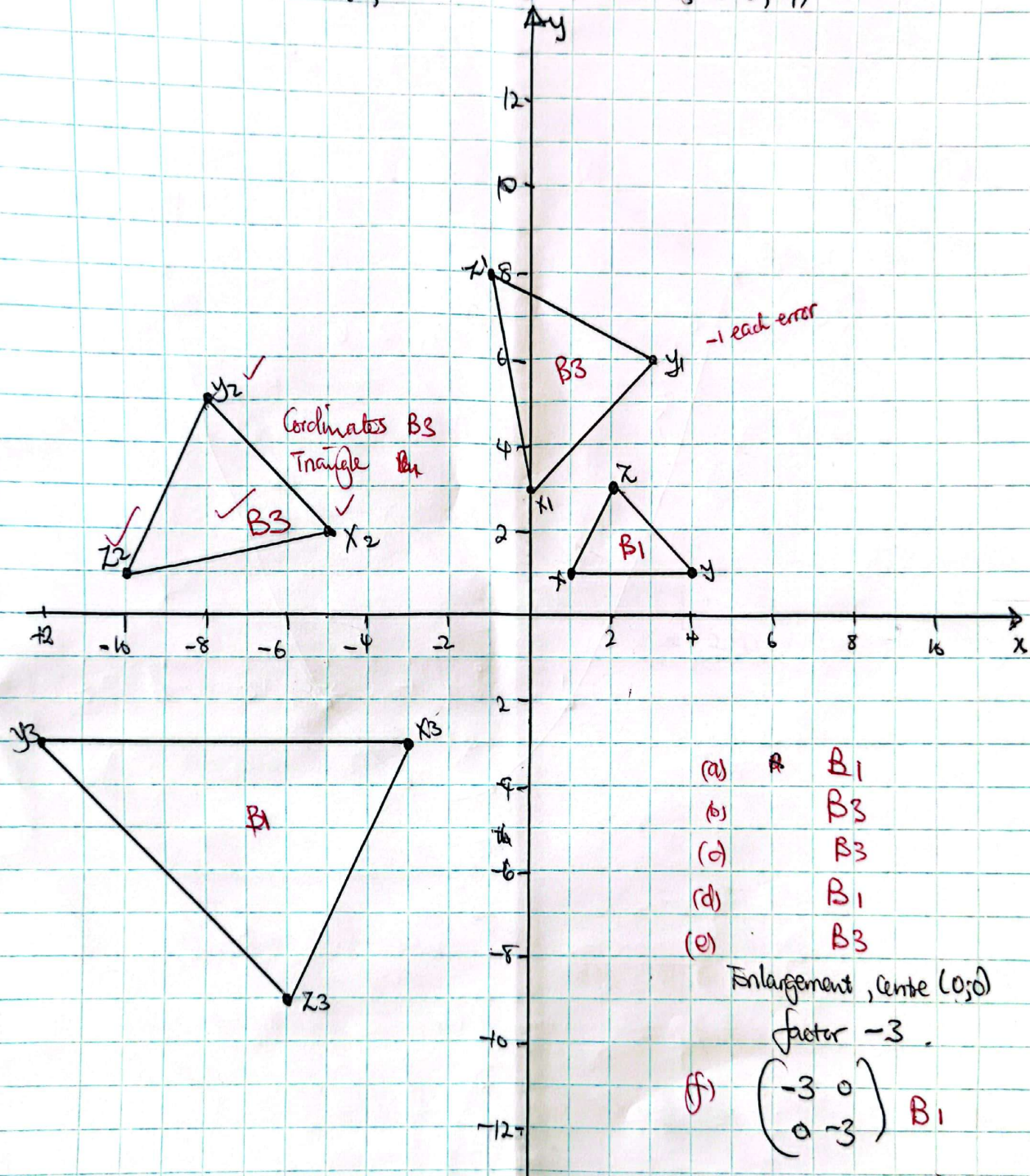
B1 B1

$(\pm 0,2)$



(11)

$X(1;1)$	$X_1(9;3)$	$X_2(-5;2)$	$X_3(-3;-3)$
$Y(4;1)$	$Y_1(3;6)$	$Y_2(-8;5)$	$Y_3(-12;-3)$
$Z(2;3)$	$Z_1(-1;8)$	$Z_2(-10;1)$	$Z_3(-6;-9)$



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