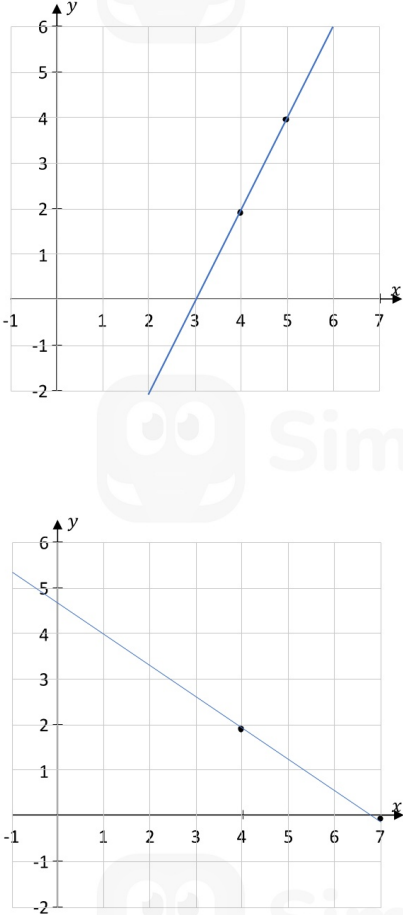


Question 1

Q1	Model Solution – 30 Marks	Marking Notes
(a) (i)	Slope of A(4,2) to B(1,8) $= \frac{y_2 - y_1}{x_2 - x_1}$ $= \frac{8 - 2}{1 - 4}$ $= -2$	Scale 10C (0, 4, 6, 10) <i>Low Partial Credit:</i> <ul style="list-style-type: none"> Work of merit <i>High Partial Credit:</i> <ul style="list-style-type: none"> Correct formula fully substituted Error(s) in substitution but finishes correctly <i>Full Credit:</i> <ul style="list-style-type: none"> Correct answer without supporting work
(a) (ii)	Distance of (4,2) to (1,8) $= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ $= \sqrt{(1 - 4)^2 + (8 - 2)^2}$ $= \sqrt{(-3)^2 + (6)^2}$ $= \sqrt{9 + 36}$ $= \sqrt{45}$ or $3\sqrt{5}$ or (6·7....)	Scale 10C (0, 4, 6, 10) <i>Low Partial Credit:</i> <ul style="list-style-type: none"> Work of merit <i>High Partial Credit:</i> <ul style="list-style-type: none"> Correct formula fully substituted Error(s) in substitution but finishes correctly <i>Full Credit:</i> <ul style="list-style-type: none"> Correct answer without supporting work
Q1	Model Solution – 30 Marks	Marking Notes
(b)	$y - y_1 = m(x - x_1)$ $y - 7 = \frac{1}{3}[x - (-2)]$ $3(y - 7) = 1(x + 2)$ $3y - 21 = x + 2$ $x - 3y + 23 = 0$	Scale 5C (0, 3, 4, 5) <i>Low Partial Credit:</i> <ul style="list-style-type: none"> Work of merit <i>High Partial Credit:</i> <ul style="list-style-type: none"> Correct formula fully substituted One error in substitution but finishes correctly Answer not in required format <i>Full Credit (-1):</i> <ul style="list-style-type: none"> $x - 3y + 23$

Q1	Model Solution – 30 Marks	Marking Notes
(c) (i) & (ii)	 <p>The top graph shows a coordinate plane with x and y axes ranging from -1 to 7. A blue line segment is drawn from the point (2, -2) to (6, 6). Two points are marked on the line at (4, 2) and (5, 4).</p> <p>The bottom graph shows a coordinate plane with x and y axes ranging from -1 to 7. A blue line segment is drawn from the point (0, 5) to (7, 0). A point is marked on the line at (4, 2).</p>	<p>Scale 5D (0, 2, 3, 4, 5)</p> <p><i>Low Partial Credit:</i></p> <ul style="list-style-type: none"> • Work of merit in (i) or (ii) • In(c)(i) line drawn with slope -2 <p style="text-align: center;">or</p> <p>In(c)(ii) line drawn with slope $\frac{2}{3}$</p> <p><i>Mid Partial Credit:</i></p> <ul style="list-style-type: none"> • Work of merit in (i) and (ii) • One part correct <p><i>High Partial Credit:</i></p> <ul style="list-style-type: none"> • One part correct and work of merit in the other • In(c)(i) line drawn with slope -2 <p style="text-align: center;">and</p> <p>In(c)(ii) line drawn with slope $\frac{2}{3}$</p> <p>Note: Accept correct line segments outside the Range and Domain for Full Credit</p>

Question 2

5	Model Solution – 30 Marks	Marking Notes
(a) & (b)	<p>(a) 6 cm</p> <p>(b)</p> $\begin{aligned} \text{Area} &= \pi r^2 \\ &= \pi(6)^2 \\ &= 36\pi \\ &= 113 \cdot 097 \\ &= 113 \cdot 10 \text{ cm}^2 \end{aligned}$	<p>Scale 10D (0, 4, 6, 8, 10)</p> <p><i>Low Partial Credit:</i></p> <ul style="list-style-type: none"> Work of merit in either (a) <u>or</u> (b) e.g. work on diagram for (a) <p><i>Mid Partial Credit:</i></p> <ul style="list-style-type: none"> One part correct <p><i>High Partial Credit:</i></p> <ul style="list-style-type: none"> One part correct and work of merit in the other part <p><i>Full Credit (-1):</i></p> <ul style="list-style-type: none"> Incorrect rounding Incorrect or omitted units Leaves answer in terms of π <p><i>Full Credit:</i></p> <ul style="list-style-type: none"> Correct answers without supporting work
(c)	$\begin{aligned} \frac{\text{Area circle}}{\text{Area square}} &= \frac{113 \cdot 10}{12 \times 12} \\ &= 0 \cdot 7854 \times 100 \\ &= 78 \cdot 54[\%] \\ &= 79[\%] \end{aligned}$	<p>Scale 5C (0, 3, 4, 5)</p> <p><i>Low Partial Credit:</i></p> <ul style="list-style-type: none"> Work of merit e.g. Finds Area of square <p><i>High Partial Credit:</i></p> <ul style="list-style-type: none"> $\frac{113 \cdot 10}{12 \times 12} \times 100$ or $0 \cdot 7854$ <p><i>Full Credit (-1):</i></p> <ul style="list-style-type: none"> Incorrect rounding <p><i>Full Credit :</i></p> <ul style="list-style-type: none"> Correct answer without supporting work
5	Model Solution – 30 Marks	Marking Notes
(d)	$\begin{aligned} x^2 &= 12^2 + 12^2 \\ x^2 &= 288 \\ x &= \sqrt{288} \\ x &= 16.9705 \\ \text{Radius} &= \frac{16 \cdot 9705}{2} \\ &= 8 \cdot 4853 \\ &= 8 \cdot 49 \end{aligned}$ <p style="text-align: center;"><u>or</u></p> $x^2 = 6^2 + 6^2$	<p>Scale 5C (0, 3, 4, 5)</p> <p><i>Low Partial Credit:</i></p> <ul style="list-style-type: none"> Work of merit e.g. Pythagoras Theorem formula written as $c^2 = a^2 + b^2$ <p><i>High Partial Credit:</i></p> <ul style="list-style-type: none"> $x = \frac{\sqrt{288}}{2}$ or $\sqrt{72}$ with work <p><i>Full Credit (-1):</i></p> <ul style="list-style-type: none"> Incorrect rounding <p><i>Zero Credit:</i></p> <ul style="list-style-type: none"> No correct substitution and no formula

	$x^2 = 72$ $x = \sqrt{72}$ $x = 8 \cdot 4853$ $x = 8 \cdot 49$	
(e)	<p>Circumference = $2\pi r$</p> <p>= $2\pi(8 \cdot 49)$</p> <p>= $53 \cdot 344$</p> <p>= $53 \cdot 34 \text{ cm}$</p>	<p>Scale 10C (0, 4, 6, 10)</p> <p><i>Low Partial Credit:</i></p> <ul style="list-style-type: none"> • Work of merit <p><i>High Partial Credit:</i></p> <ul style="list-style-type: none"> • Correct formula fully substituted <p><i>Full Credit (-1):</i></p> <ul style="list-style-type: none"> • Incorrect rounding • Incorrect or omitted units <p><i>Full Credit :</i></p> <ul style="list-style-type: none"> • Correct answer without supporting work <p><i>Zero Credit:</i></p> <ul style="list-style-type: none"> • $53 \cdot 3$ without work

Question 3

4	Model Solution – 30 Marks	Marking Notes
(a) (i)	$S.S.S = (0.7)(0.7)(0.7)$ $= 0.343 \text{ or } \frac{343}{1000} \text{ or } 34.3\%$	<p>Scale 5C (0, 3, 4, 5)</p> <p><i>Low Partial Credit:</i></p> <ul style="list-style-type: none"> • Work of merit e.g. 0.7 or $\frac{7}{10}$ written <p><i>High Partial Credit:</i></p> <ul style="list-style-type: none"> • Correct layout with full substitution e.g. 0.7^3 or $\left(\frac{7}{10}\right)^3$ <p><i>Full Credit:</i></p> <ul style="list-style-type: none"> • Correct answers without supporting work <p><i>Zero Credit:</i></p> <ul style="list-style-type: none"> • Probability greater than 1
(a) (ii)	$S.S.F = (0.7)(0.7)(0.3)$ $= 0.147$ <p>Three arrangements</p> $0.147 \times 3 = 0.441 \left(\frac{441}{1000}\right)$	<p>Scale 10C (0, 4, 6, 10)</p> <p><i>Low Partial Credit:</i></p> <ul style="list-style-type: none"> • Work of merit e.g. indicates three arrangements <p><i>High Partial Credit:</i></p> <ul style="list-style-type: none"> • Correct layout with correct substitution • Answer as 0.147 or $\frac{147}{1000}$ <p><i>Full Credit:</i></p> <ul style="list-style-type: none"> • Correct answers without supporting work <p><i>Zero Credit:</i></p> <p>Probability greater than 1</p>
(a) (iii)	<p>Previous performance levels may affect future performance.</p>	<p>Scale 5B (0, 3, 5)</p> <p><i>Partial Credit:</i></p> <ul style="list-style-type: none"> • Work of merit e.g. Partial explanation
4	Model Solution – 30 Marks	Marking Notes
(b)	$\mu = \frac{\sum fx}{\sum f}$ $= \frac{4(0)+5(6)+4(8)+2(10)+3(12)+1(16)}{4+5+4+2+3+1}$ $= \frac{0 + 30 + 32 + 20 + 36 + 16}{19}$ $= \frac{134}{19} = 7.05263$ <p>$= 7.05$ points scored</p>	<p>Scale 10C (0, 4, 6, 10)</p> <p><i>Low Partial Credit:</i></p> <ul style="list-style-type: none"> • Work of merit e.g. Some addition of numerator or denominator terms • 134 and/or 19 without work <p><i>High Partial Credit:</i></p> <ul style="list-style-type: none"> • Correct formula fully substituted • One error and finishes correctly <p><i>Full Credit (-1):</i></p> <ul style="list-style-type: none"> • Incorrect rounding <p><i>Full Credit:</i></p>

- Correct answer without supporting work

Question 4

Q1	Model Solution – 30 Marks	Marking Notes
(a) (i)	$m_{AC} = \frac{3 - 0}{0 - (-2)} = \frac{3 - 0}{0 + 2} = \frac{3}{2}$	<p>Scale 5C (0, 2, 3, 5)</p> <p><i>Low Partial Credit:</i></p> <ul style="list-style-type: none"> • Work of merit e.g. slope formula written down <p><i>High Partial Credit:</i></p> <ul style="list-style-type: none"> • Correct formula, with fully correct substitution or gets slope of BC <p><i>Full Credit:</i></p> <ul style="list-style-type: none"> • Correct answer without supporting work
(a) (ii)	<p>Answer: AC is not perpendicular to BC</p> <p>Justification:</p> $m_{BC} = -\frac{3}{5}$ <p>Slope of AC_{\perp} would be $-\frac{2}{3}$</p> <p style="text-align: center;">OR</p> $m_{AC} \times m_{BC} = \frac{3}{2} \times \frac{-3}{5} \neq -1$	<p>Scale 10C (0, 3, 7, 10)</p> <p><i>Zero Credit:</i></p> <ul style="list-style-type: none"> • Mention of 90° <p><i>Low Partial Credit:</i></p> <ul style="list-style-type: none"> • Work of merit e.g. Correct Box Ticked • Slope formula written • Shows an understanding of relationship between perpendicular lines and their slopes <p><i>High Partial Credit:</i></p> <ul style="list-style-type: none"> • Answer correct and significant slope-related work presented. • Brings down m_{AC} from (a)(i) and calculates m_{BC} in (a)(ii) <p><i>Full Credit (-1):</i></p> <ul style="list-style-type: none"> • Fully correct work but box not ticked <p>Note: Watch out for consistent work here</p>
Q1	Model Solution – 30 Marks	Marking Notes
(b)	<p>(i) $2 \times 9 = 18$</p> <p>(ii) $y = 1$</p> <p style="text-align: center;">OR</p> $y - 1 = 0(x - 9)$ <p>So $[y - 1 = 0]$</p>	<p>Scale 5C (0, 2, 3, 5)</p> <p><i>Low Partial Credit:</i></p> <ul style="list-style-type: none"> • Work of merit in any one part • Correct relevant formula written <p><i>High Partial Credit:</i></p> <ul style="list-style-type: none"> • Part (i) or (ii) correct <p><i>Full Credit:</i></p> <ul style="list-style-type: none"> • Correct answers without supporting work
(b) (iii)	$x = 0 :$ $0 + 4y - 13 = 0$ $4y = 13$	<p>Scale 10C (0, 3, 7, 10)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> • Work of merit e.g. indicates $x = 0$

$$y = \frac{13}{4}$$

$$y = \frac{13}{4}$$

$$N = \left(0, \frac{13}{4}\right)$$

- Finds a point on the given line other than the intercepts

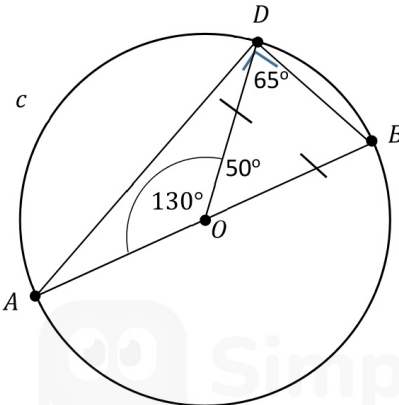
High Partial Credit


- Substitutes $x = 0$ in equation, accompanied by further work of merit
- Substitutes $y = 0$ and correctly finds x

Full Credit (-1):

- Answer not given as a pair of co-ordinates

Question 5

Q6	Model Solution – 30 Marks	Marking Notes
	<p>Diagram:</p> 	<p>Note: Check Candidate's Diagram for meritorious work throughout this question</p>
(a) (i)	90°	<p>Scale 5A (0, 5)</p> <ul style="list-style-type: none"> • Hit or Miss
(a) (ii)	$2X = 130^\circ \text{ so } X = 65^\circ$ <p style="text-align: center;">OR</p> $ \angle DOB = 180 - 130 = 50^\circ$ $X = \frac{180 - 50}{2} = \frac{130}{2} = 65^\circ$	<p>Scale 5C (0, 2, 3, 5)</p> <p><i>Low Partial Credit:</i></p> <ul style="list-style-type: none"> • Any correct geometrical property mentioned or illustrated e.g. finds 50°, or indicates that angle at B is also X <p><i>High Partial Credit:</i></p> <ul style="list-style-type: none"> • Geometrical property developed by correct substitution but X not calculated <p><i>Full credit:</i></p> <ul style="list-style-type: none"> • Accept correct answer without supporting work
Q6	Model Solution – 30 Marks	Marking Notes
(a) (iii)	<p>Minor arc:</p> $\frac{130}{360} \times 2\pi(18) = 13\pi \text{ [cm]}$ <p style="text-align: center;">or</p> <p>Major arc:</p> $\frac{(360-130)}{360} \times 2\pi(18) = 23\pi \text{ [cm]}$	<p>Scale 10C (0, 3, 7, 10)</p> <p><i>Low Partial Credit:</i></p> <ul style="list-style-type: none"> • Work of merit • Correct relevant formula written • $\frac{130}{360}$ <p><i>High Partial Credit:</i></p> <ul style="list-style-type: none"> • Finds circumference • Fully correctly-substituted arc-length formula • Answer not in terms of π

		<p><i>Misreading(-1)</i></p> <ul style="list-style-type: none"> If a different arc is correctly calculated <p>e.g. $\frac{50}{360} \times 2\pi(18) = 5\pi$</p>
<p>(b)</p>	<p>(i) False</p> <p><i>Reason:</i> Similar Triangles have the same shape but different measurements, thus a small and a large triangle could have angles the same but they are <u>not identical</u>.</p> <p>(ii) True</p> <p><i>Reason:</i> Congruent Triangles are triangles where all the corresponding sides and interior angles are equal in measure (including area). This means all features <u>are identical</u> so angles must be the same</p>	<p>Scale 10D (0, 3, 5, 8, 10)</p> <p><i>Low Partial Credit:</i></p> <ul style="list-style-type: none"> Work of merit in either part e.g. True or False correct, or reason shows understanding of similarity or congruence <p><i>Mid Partial Credit:</i></p> <ul style="list-style-type: none"> One part fully correct (answer and reason) Work of merit in both parts <p><i>High Partial Credit:</i></p> <ul style="list-style-type: none"> One part fully correct (answer and reason) and work of merit in the other part

Question 6

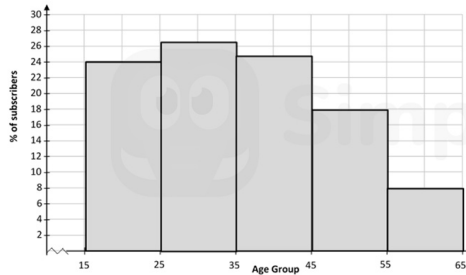
Q8	Model Solution – 50 Marks	Marking Notes
(a) (i)	$V = \frac{2}{3}\pi(3^3) = 18\pi \text{ [m}^3\text{]}$	<p>Scale 5C (0, 2, 3, 5)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> Substitutes $r = 3$ into formula for volume of a sphere Formula for volume of a hemisphere <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> Formula correctly substituted Answer not in terms of π Correct answer without supporting work
(a) (ii)	$V = \pi(3^2)h = 36\pi$ <p style="text-align: center;">So $h = 4 \text{ m}$</p>	<p>Scale 10D (0, 3, 5, 8,10)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> Formula for cylinder written with no substitution Substitutes $r = 3$ into cylinder formula Sets cylinder formula = 36π <p><i>Mid Partial Credit</i></p> <ul style="list-style-type: none"> Forms correct equation in h <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> Correct equation in h and further significant work of merit in solving for h
Q8	Model Solution – 50 Marks	Marking Notes
(b) (i)	$\tan A = \frac{47}{7 \cdot 5}$ $A = \tan^{-1}\left(\frac{47}{7 \cdot 5}\right)$ $A = 80 \cdot 93349^\circ$ $A = 81^\circ[\text{nearest degree}]$	<p>Scale 5C (0, 2, 3, 5)</p> <p><i>Low Partial Credit:</i></p> <ul style="list-style-type: none"> Correct trigonometric ratio $a^2 = (7 \cdot 5)^2 + (47)^2$ <p><i>High Partial Credit:</i></p> <ul style="list-style-type: none"> Fully substituted trigonometric ratio Incorrect calculator mode but otherwise correct (only once in the paper) <p>Note: Rad=1. Grad=90</p>
(b) (ii)	$\frac{3}{7 \cdot 5} = \frac{x}{47}$ $x = 18 \cdot 8$ $k = 47 - 18 \cdot 8 = 28 \cdot 2 \text{ m}$ <p style="text-align: center;">OR</p>	<p>Scale 5C (0, 2, 3, 5)</p> <p><i>Low Partial Credit</i></p> <ul style="list-style-type: none"> One correct ratio of corresponding sides Some correct substitution Correct trigonometric ratio

$\frac{k}{47} = \frac{7.5-3}{7.5} = \frac{4.5}{7.5}$ $k = \frac{4.5}{7.5} \times 47 = 28.2 \text{ m}$ <p style="text-align: center;">OR</p> $\tan 81^\circ = \frac{x}{3}$ $x = 3(\tan 81)$ $x = 18 \cdot 94125$ $k = 47 - 18 \cdot 94125$ $k = 28 \cdot 058$ $k = 28 \cdot 06 \text{ m}$	<p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> • Correct equation in x • Error in setting up equation, but finishes correctly <p><i>Full Credit(-1)</i></p> <ul style="list-style-type: none"> • Correct value but no or incorrect unit <p>Note: Rad = $49 \cdot 433$ Grad = $37 \cdot 248$</p>
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Q8	Model Solution – 30 Marks	Marking Notes
(c) (i)	$\text{Area} = \pi (50^2) = 7853.98 \dots$ $= 7854 \text{ km}^2 \text{ [nearest km}^2\text{]}$	<p>Scale 5B (0, 2, 5)</p> <p><i>Partial Credit</i></p> <ul style="list-style-type: none"> • Area of circle formula written <p><i>Full Credit(-1)</i></p> <ul style="list-style-type: none"> • Incorrect rounding <p><i>Full Credit:</i></p> <ul style="list-style-type: none"> • Correct answer without supporting work
(c) (ii)	$27 \text{ Nautical miles} = 50 \text{ km}$ $1 \text{ Nautical mile} = \frac{50}{27}$ $= 1 \cdot 8518 \dots$ $= 1 \cdot 852 \text{ [km]}$	<p>Scale 10B (0, 5, 10)</p> <p><i>Partial Credit</i></p> <ul style="list-style-type: none"> • $\frac{50}{27}$ • $\frac{27}{50}$, and finishes correctly <p><i>Full Credit (-1)</i></p> <ul style="list-style-type: none"> • Correct value, but incorrect rounding <p><i>Full Credit:</i></p> <ul style="list-style-type: none"> • Correct answer without supporting work

Question 7

(a)
(i)



(a)
(ii)

$$\frac{27 + 25 + 16}{100} = 68\%$$

$$68\% \times 1000 = 680 \text{ people}$$

or

$$270 + 250 + 160 = 680$$

(a)
(iii)

The 25 to 35 age group

(a)
(iv)

$$[(24 \times 20) + (27 \times 30) + (25 \times 40) + (16 \times 50) + (8 \times 60)] \div 100$$

$$= \frac{3570}{100}$$

$$= 35.7$$

Scale 15C (0, 5, 10, 15)

Low Partial Credit:

Work of merit

- One correct column height indicated

High Partial Credit:

Significant Work

- Three correct columns drawn
- All correct height columns drawn but gaps between them

Scale 5C (0, 2, 3, 5)

Low Partial Credit:

Work of merit

- Work with any Two of 27, 25, 16

High Partial Credit:

Significant Work

- Works to $27 + 25 + 16 = 68$

Full Credit:

- Correct answer without supporting work

Scale 5B (0, 2, 5)

Partial Credit:

Work of merit

- Median interpreted as 50%, Middle or Half

Full Credit:

- Correct answer without supporting work

Scale 10C (0, 3, 7, 10)

Low Partial Credit:

Work of merit

- Calculates a mid-interval value
- Effort at adding data
- 24×20 or equivalent
- Division by 100

High Partial Credit:

Significant Work

- Formula substituted correctly but not evaluated
- Consistent incorrect mid interval values, finished correctly
- One error and finishes correctly

Full Credit:

- Correct answer without supporting work

(b)

(i) $\frac{1}{\sqrt{540}} = 0.043 = 4.3\%$

(b)

(ii) $\hat{p} = \frac{372}{540} = 0.6888 = 68.9\%$

95% confidence interval =

$$\left[\hat{p} - \frac{1}{\sqrt{n}}, \hat{p} + \frac{1}{\sqrt{n}} \right]$$

$$[(68.9 - 4.3), (68.9 + 4.3)]$$

$$[64.6\%, 73.2\%]$$

(b)

(iii)

H_0 = the Netflix share of the market has not changed.

or ($H_0: p = 65\%$)

H_1 = the Netflix share of the market has changed

or ($H_1: p \neq 65\%$)

$$65\% \in [64.6\%, 73.2\%]$$

(Fail to reject H_0 and) conclude that the Netflix share of the market has not changed

Scale 5C (0, 2, 3, 5)

Low Partial Credit:

Work of merit

- Writes $\frac{1}{\sqrt{n}}$
- Reference to multiplication by 100

High Partial Credit:

Significant Work

- Correct formula fully substituted $\frac{1}{\sqrt{540}}$
- Answer as 0.043

Full Credit:

- Correct answer without supporting work

Scale 5C (0, 2, 3, 5)

Low Partial Credit:

Work of merit

- Writes answer from (b)(i) in this part
- $\hat{p} = \frac{372}{540}$
- $\hat{p} \pm \frac{1}{\sqrt{n}}$
- $\hat{p} \pm 1.96 \sqrt{\frac{p(1-p)}{n}}$

High Partial Credit:

Significant Work

- One boundary formed
($68.9 - 4.3$ or $68.9 + 4.3$)
- Correct answer without supporting work

Scale 5C (0, 2, 3, 5)

Low Partial Credit:

Work of merit

- Any one of H_0 , H_1 , or Confidence interval written

High Partial Credit:

Significant Work

- H_0 , H_1 , and reference to C.I.
- Conclusion (from correct work) not in context

Question 8

Q8	Model Solution – 50 Marks	Marking Notes
(a) (i)	$l^2 = 1 \cdot 4^2 + 3^2$ $l^2 = 10 \cdot 96$ $l = \sqrt{10 \cdot 96}$ $l = 3 \cdot 31058 \dots$ $l = 3 \cdot 3 \text{ [m]}$	<p>Scale 10C (0, 4, 5, 10)</p> <p>Accept correct answer without units</p> <p><i>Low Partial Credit:</i></p> <ul style="list-style-type: none"> • Correct relevant formula • Use of Cosine Rule would merit at most L.P.C. <p><i>High Partial Credit:</i></p> <ul style="list-style-type: none"> • Correct formula fully substituted • One error in substitution and finishes correctly <p><i>Full Credit (-1):</i></p> <ul style="list-style-type: none"> • Apply a * for no or incorrect rounding
(a) (ii)	$\tan A = \frac{3}{1 \cdot 4}$ $A = 64 \cdot 983 \dots$ $A = 65[^\circ]$ <p>Or similar using $l=3 \cdot 3$</p>	<p>Scale 5C (0, 2, 3, 5)</p> <p><i>Low Partial Credit:</i></p> <ul style="list-style-type: none"> • Work of merit <p><i>High Partial Credit:</i></p> <ul style="list-style-type: none"> • $\tan A = \frac{3}{1 \cdot 4}$ or similar • Finds $\angle GFH$ using trigonometry (25°) <p><i>Full Credit (-1):</i></p> <ul style="list-style-type: none"> • Apply a * for no or incorrect rounding
(a) (iii)	<p>Answer: No</p> $\tan A = \frac{1 \cdot 5}{1 \cdot 4}$ $A = 46 \cdot 974 \dots$ $A = 47 [^\circ]$ $47^\circ \neq \frac{1}{2} (65^\circ)$	<p>Scale 5C (0, 2, 3, 5)</p> <p><i>Low Partial Credit:</i></p> <ul style="list-style-type: none"> • Work of merit, for example, correct box ticked • 1.5 or 32.5 written <p><i>High Partial Credit:</i></p> <ul style="list-style-type: none"> • Answer as 47° <p><i>Full Credit (-1):</i></p> <ul style="list-style-type: none"> • Correct box not ticked • No conclusion
Q8	Model Solution – 50 Marks	Marking Notes
(b) (i)	$\frac{12}{\sin \theta} = \frac{10}{\sin 37}$ $\sin \theta = \frac{12 \sin 37}{10}$ $\sin \theta = 0.7222$ $\theta = 46.234..$ $\theta = 46^\circ$	<p>Scale 10C (0, 4, 5, 10)</p> <p><i>Low Partial Credit:</i></p> <ul style="list-style-type: none"> • Work of merit, for example, sine rule formula <p><i>High Partial Credit:</i></p> <ul style="list-style-type: none"> • Correct formula fully substituted <p><i>Full Credit (-1):</i></p>

		<ul style="list-style-type: none"> • Apply a * for no or incorrect rounding
(b) (ii)	$ CE ^2 = 22^2 + 11 \cdot 8^2$ $- 2(22)(11 \cdot 8) \cos 110$ $ CE ^2 = 800 \cdot 816 \dots$ $ CE = 28 \cdot 298 \dots$ $ CE = 28 \cdot 3 \text{ cm}$	Scale 10C (0, 4, 5, 10) <i>Low Partial Credit:</i> <ul style="list-style-type: none"> • Work of merit, for example, cosine rule formula <i>High Partial Credit:</i> <ul style="list-style-type: none"> • Correct formula fully substituted <i>Full Credit (-1):</i> <ul style="list-style-type: none"> • Apply a * for no or incorrect rounding • Apply a * for incorrect units
(b) (iii)	$\text{Area} = \frac{1}{2} (22)(11 \cdot 8) \sin 110$ $= 121 \cdot 972 \dots$ $\text{Total area} = 2 \times 121 \cdot 972 \dots$ $= 243 \cdot 944 \dots$ $= 244 \text{ [cm}^2\text{]}$	Scale 10C (0, 4, 5, 10) <i>Low Partial Credit:</i> <ul style="list-style-type: none"> • Work of merit, for example, area of triangle formula <i>High Partial Credit:</i> <ul style="list-style-type: none"> • Area formula fully substituted • Area of triangle CEF given as answer <i>Full Credit (-1):</i> <ul style="list-style-type: none"> • Apply a * for no or incorrect rounding