

Q1. (2018)

21(a)	$2 \times 4.2 \times \pi$ or 8.4π	M1	oe allow [3.14, 3.142] for π
	[26.376, 26.393]	A1	may be implied by 26.4 as answer
	26.4	B1ft	ft their value to at least 2 dp rounded correctly to 1 dp
	Additional Guidance		
	26.4		M1A1B1ft
	26.3 only		M0A0B0ft
	55.4 only		M0A0B0ft

Q2. (2018)

21(b)	Sector drawn correctly	B1	two radii joined at the centre of the circle
	Additional Guidance		
	Mark intention		
	Diameter drawn		B1
	Any number of sectors (eg diameter and radius drawn)		B1
	Ends of radii joined to form segment with whole sector shaded		B1
	Ends of radii joined to form segment without whole sector shaded		B0

Q3. (2020)

Q	Answer	Mark	Comments
14	True False False True	B3	B2 three correct B1 two correct allow any unambiguous indication
	Additional Guidance		
	A tick and a cross in the same row – mark the tick		
	Only a cross used in a row – regard cross as their selection for that row		

Q4. (2021)

Q	Answer	Mark	Comments
30	Alternative method 1 Shows algebraically that the angles are equal		
	$4x + 40$	M1	may be embedded or on the diagram
	$x + 2(2x + 20)$ or $x + 4x + 40$	M1	
	$x + 4x + 40 = 5x + 40$ and Yes	A1	
	Alternative method 2 Derives and solves an equation for angles at a point and substitutes into $5x + 40$ or $x + 2(2x + 20)$		
	$4x + 40$	M1	may be embedded or on the diagram or implied eg implied by $10x + 80 = 360$
	$x + 2(2x + 20) + 5x + 40 = 360$ or $x + 4x + 40 + 5x + 40 = 360$ or $(x =) 28$	M1	oe equation eg $10x + 80 = 360$ $(x =) 28$ may be on the diagram
	$140 + 40 = 180$ and Yes or $28 + 152 = 180$ and Yes	A1	oe must obtain $(x =) 28$ from one expression and substitute $(x =) 28$ into a different expression
	Alternative method 3 Assumes line is a diameter. Derives and solves an equation for angles on a line using $5x + 40$ and substitutes into $x + 2(2x + 20)$ or $x + 2(2x + 20) + 5x + 40$		
	$5x + 40 = 180$	M1	
	$(x =) (180 - 40) \div 5$ or $(x =) 28$	M1dep	oe $(x =) 28$ may be on the diagram
	$28 + 152 = 180$ and Yes or $28 + 152 + 140 + 40 = 360$ and Yes	A1	oe must obtain $(x =) 28$ from one expression and substitute $(x =) 28$ into a different expression

30 cont	Alternative method 4 Assumes line is a diameter. Derives and solves an equation for angles on a line using $x + 2(2x + 20)$ and substitutes into $5x + 40$ or $x + 2(2x + 20) + 5x + 40$		
	$x + 2(2x + 20) = 180$ or $x + 4x + 40 = 180$	M1	
	$(x \Rightarrow) (180 - 40) \div 5$ or $(x \Rightarrow) 28$	M1dep	oe $(x \Rightarrow) 28$ may be on the diagram
	$140 + 40 = 180$ and Yes or $28 + 152 + 140 + 40 = 360$ and Yes	A1	oe must obtain $(x \Rightarrow) 28$ from one expression and substitute $(x \Rightarrow) 28$ into a different expression
	Alternative method 5 Assumes line is a diameter. Derives and solves two equations for angles on a line/angles at a point		
	$5x + 40 = 180$ or $x + 2(2x + 20) = 180$ or $x + 4x + 40 = 180$ or $x + 2(2x + 20) + 5x + 40 = 360$ or $x + 4x + 40 + 5x + 40 = 360$	M1	
	$(x \Rightarrow) (180 - 40) \div 5$ or $(x \Rightarrow) 28$	M1dep	oe $(x \Rightarrow) 28$ may be on the diagram
	Obtains $(x \Rightarrow) 28$ from two equations for angles on a line/angles at a point and Yes	A1	

30 cont	Additional Guidance	
	Choose the scheme that favours the student	
	Up to M2 may be awarded for correct work, with no or incorrect answer, even if this is seen amongst multiple attempts	
	Correct response with other incorrect work	M1M1A0
	Alt 1 $2(2x + 20) = 4x + 20$ followed by $x + 4x + 20$ Alt 1 $x + 4x + 20$ with $2(2x + 20) = 4x + 20$ not seen Apply marks in a similar way in alts 2, 4 and 5	M0M1 M0M0
	$(x \Rightarrow) 28$	M1M1
	Allow $(x \Rightarrow) 28$ to be embedded	M1M1
	No method marks scored with a value of x ($\neq 28$) substituted into $5x + 40$ and $x + 2(2x + 20)$ giving the same value	M0M0A0
	Yes can be implied eg Alt 1 $x + 4x + 40 = 5x + 40$ and It is a diameter	M1M1A1

Q5. (2024)

Q	Answer	Mark	Comments
16	segment	B1	region A
	sector	B1	region B