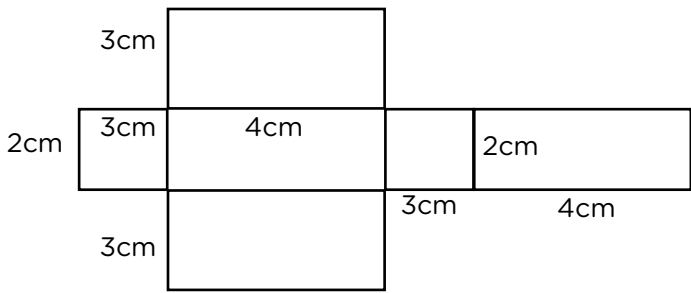


Starters

Parallel Lines	Opposite angles are equal and internal angles add to 180°	(1)
	$81 + a + 67 = 180$	(1)
	$a = 32^\circ$	(1)

Perpendicular Bisector	Arc from each point drawn	(1)
	Line joining intersections	(1)

Nets		(1)
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Trigonometric Values	$\sin 30 = \frac{1}{2}$	(1)
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Angles in a Circle	$x = 102^\circ$ cyclic quadrilateral adds to 180°	(1)
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Pythagoras' Theorem	$4.9^2 + 6.2^2 = AC^2$	
	$AC = 7.9\text{cm}$	

Main Course

I am sailing	$\tan \theta = 5.2/3.6 \quad \theta = 55.3$	(1)
	Bearing A from B $90 - 55.3 = 034.7^\circ$	(1)
	$\cos 55.3 = 3.6/h$	(1)
	$h = 6.32\text{km}$	(1)

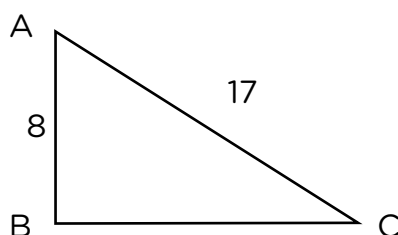
Angles in a Pentagon	Max $x = 540 - (93.5 + 86.5 + 107.5 + 118.5)$	(1)
	$= 134^\circ$	(1)
	Min $x = 540 - (94.5 + 87.5 + 108.5 + 119.5)$	(1)
	$= 130^\circ$	(1)
Vectors	$\vec{AB} = -3a + 2b$	(1)
	$\vec{OP} = 3a + \frac{3}{4}(-3a + 2b)$	(1)
	$= \frac{3}{4}a + \frac{3}{2}b$	(1)
Baseball	Angle BPF $= 180 - (36 + 46) = 98^\circ$	(1)
	$\frac{BF}{\sin 98} = \frac{18.39}{\sin 36}$	(1)
	$BF = 30.98\text{m}$	(1)
Filling the Sink	Volume $= \frac{4}{3} \pi 30^3 \times \frac{1}{2} / 1000$	(1)
	$= 18 \pi$ litres	(1)
	$= 240 \div 60 = 4$ litres a minute	(1)
	$= 18 \pi \div 4 = 14$ minutes	(1)
Anyone for Tea?	Volume of kettle $= \frac{12393 \pi}{5}$	(1)
	Volume of Mug $= 300 \pi$	(1)
	No of mugs filled $= 8$ full cups	(1)
	Remaining water 0.25 litres	(1)

Dessert

Trigonometry

$$BC = \sqrt{17^2 - 8^2} = 15 \quad (1)$$

$$\cos \theta = \frac{15}{17} \quad (1)$$



Angles in Polygons

Internal angle for equilateral triangle = 60°

Internal angle for square = 90°

Internal angle for regular hexagon = 120° (1)

For shapes to tessellate internal angles must add to 360°

$$120 + 90 + 90 + 60 = 360^\circ \quad (1)$$

Surface Area of Cylinder

$$SA = 2\pi r^2 + 2\pi rh \quad (1)$$

$$= 2\pi r(r + h) \quad (1)$$

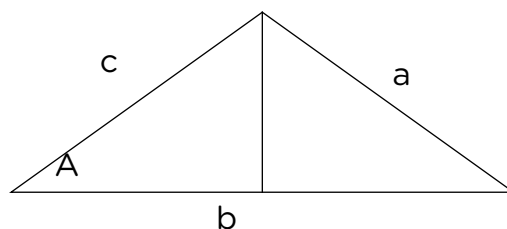
Circle Theorems

Angle CBE = 70° = Angle BDE opposite interior angle (1)

Angle ODB = 55° triangle is isosceles so angle BOD = 70° (1)

Angle BED = 35° angle at circumference half angle at centre (1)

Area of Triangle	$\sin A = \frac{\text{height}}{c}$	so $h = c \times \sin A$	(1)
	$\text{Area} = \frac{1}{2} \times \text{base} \times \text{height}$		(1)
	$= \frac{1}{2} \times b \times c \times \sin A$		(1)



Volume Ratios	If heights same height of cone = $2r$		(1)
	$\text{Vol Cone} = \frac{2}{3} \pi r^3$		(1)
	$\frac{2}{3} \pi r^3 : \frac{4}{3} \pi r^3$		(1)
	$1 : 2$		(1)

Drinks

Bearings	$360 - 242 = 118^\circ$		(1)
	$180 - 118 = 62^\circ$		(1)

Loci	Two points 5cm apart		(1)
	Circle 1 - radius 3cm and Circle 2 radius 3.5cm		(1)
	Shade region that intersects		(1)

Angle of a Sector	$\frac{\theta}{360} \times \pi \times 4.5^2 = 24$		(1)
	$\theta = \frac{24}{\pi \times 4.5^2} \times 360$		(1)
	$= 135.8^\circ$		(1)

Higher Geometry & Measures Answers

GCSE Mathematics



Area of Similar Shapes	$56 \times 50^2 = 140\,000 \text{ cm}^2$	(1)
	$= 14\text{m}^2$	

Angles in Triangles	$\frac{\sin BAC}{5.9} = \frac{\sin 32}{7.2}$	(1)
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	$BAC = \sin^{-1} \left(\frac{5.9 \times \sin 32}{7.2} \right)$	(1)
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	$= 25.7^\circ$	(1)
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Enlargement	Triangle (-1,1) (-5,1) (-5,-7)	(2)
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