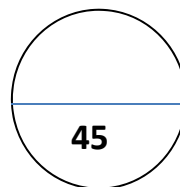


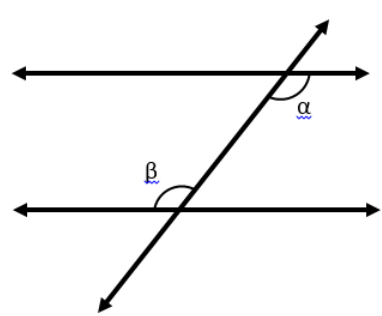
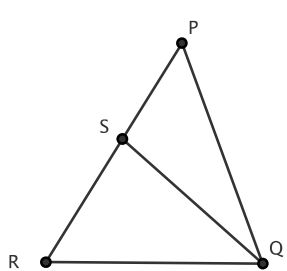
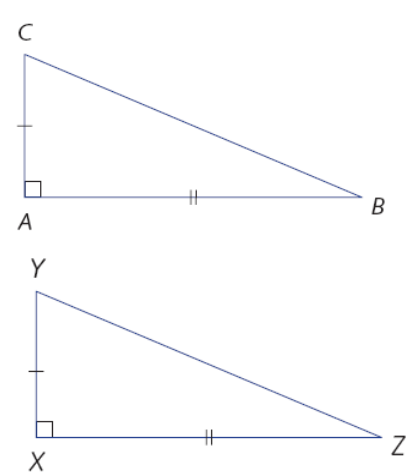


Year 11 Specialist Maths - 2017
Geometry Test
 Technology Free Assessment – 45 minutes writing time



Name: _____

Multiple Choice (10 x 2 = 20 marks). **Circle** the correct answer.

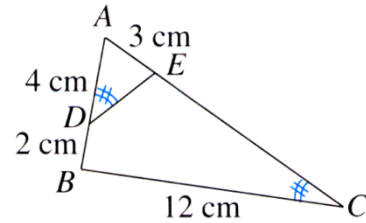
Question 1 Angles α and β are: A. Vertically Opposite B. Co-interior C. Corresponding D. Alternate E. Supplementary	Working space 
Question 2 In the figure $PQ = QR$ and angle $RSQ =$ angle PSQ. It can be proved that A. $\angle RQS = \angle PSQ$ B. $\angle PRQ = \angle RSQ$ C. $\angle QPS = \angle QRS$ D. $QS = QP$ E. $QS = RS$	Working space 
Question 3 Which rule can be used to prove that $\triangle ABC \cong \triangle XYZ$? A. SSS B. AAS C. RHS D. SAS E. AAA	Working space 

Question 4

D and E are points on AB and AC respectively. $AD = 4$ cm, $DB = 2$ cm, $AE = 3$ cm and $BC = 12$ cm. $\angle ADE = \angle ACB$. The length DE , in centimetres, is

- A. 6
- B. $\frac{9}{2}$
- C. 9
- D. 10
- E. 11

Working space

**Question 5**

The linear dimensions of a cone are doubled. The value of the fraction $\frac{\text{Surface Area}}{\text{Volume}}$ is

- A. multiplied by 2
- B. multiplied by 4
- C. multiplied by 8
- D. divided by 2
- E. divided by 4

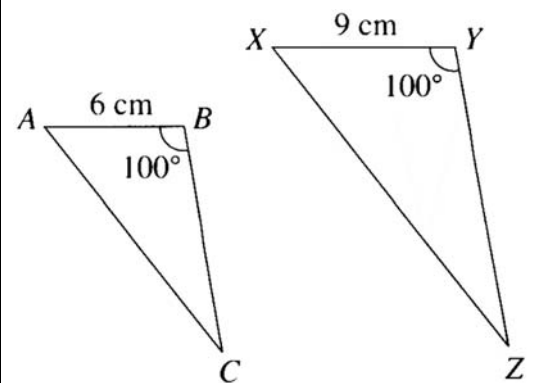
Working space

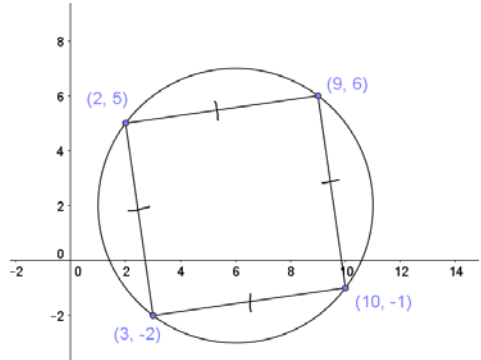
Question 6

The area of triangle ABC is 20 cm^2 . Triangle XYZ is similar to triangle ABC . The area of triangle XYZ , in square centimetres, is:

- A. 30
- B. 35
- C. 40
- D. 45
- E. 50

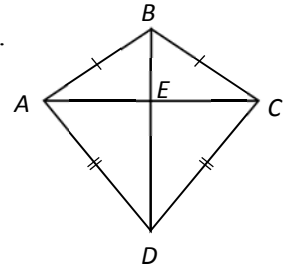
Working space



Question 7 $8 : 3 = x : 7$ then x is equal to: A. 4 B. $\frac{56}{3}$ C. 5 D. $\frac{24}{7}$ E. $\frac{7}{3}$	Working space
Question 8 Two numbers are in the ratio $7 : 3$. The difference of the two numbers is 16. The larger of the two numbers is A. 4 B. 20 C. 34 D. 28 E. 15	Working space
Question 9 If the midpoint of the line segment joining the points A (3, 7) and B (x, y) has coordinates (6, 2), then the coordinates of B are: A. (15, 3) B. (0, -6) C. (9, -3) D. (4.5, 4.5) E. (-9, 3)	Working space
Question 10 The circle has a diameter of: A. 10 units B. 7.07 units C. 6 units D. 5 units E. 12 units	Working space 

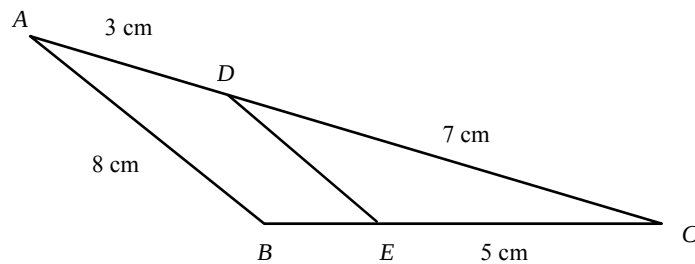
Short answer questions (25 marks)

- 1) In the diagram, $AD = CD$ and $AB = CB$. Prove that DB bisects $\angle ADC$.



(2 marks)

- 2) In the diagram shown, $AD = 3$ cm, $DC = 7$ cm, $EC = 5$ cm, $AB = 8$ cm and $AB \parallel DE$.



- a. Name the similar triangles and state the abbreviated reason for similarity

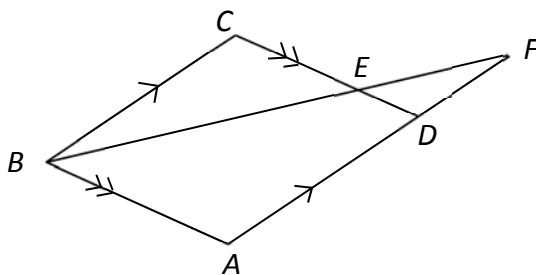
- b. Hence find:

i. DE

ii. BE

(1 + 2 + 2 = 5 marks)

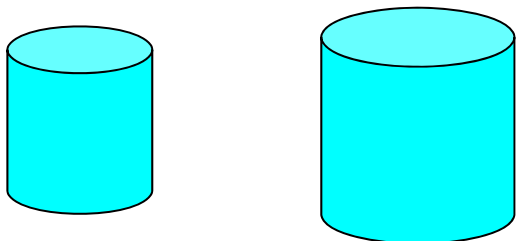
- 3) Consider the parallelogram $ABCD$. E is a point on CD . BE and AD are extended to meet at F .



Prove that $\triangle BEC \sim \triangle FED$.

(3 Marks)

- 4) The two cylinders shown are similar solids. The surface area of the smaller cylinder is 600 cm^2 and the volume of the smaller cylinder is $V \text{ cm}^3$. The radius of the smaller cylinder is 5 cm and the radius of the larger cylinder is 10 cm.

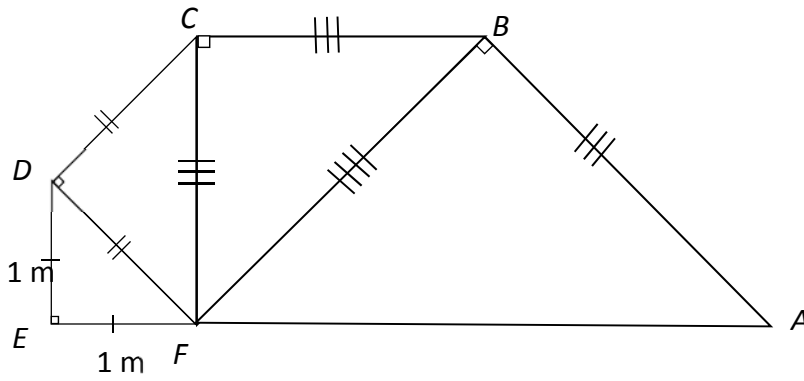


Find:

- the surface area of the larger cylinder
- the volume of the larger cylinder in terms of V

(3 + 2 = 5 marks)

5) Find the length of AF in the following diagram:



(3 marks)

6) A, B, C and D are four points marked in order on a line, as shown below, such that $AB : AC = 5 : 7$ and $BD : CD = 5 : 2$. If CD is 100 cm long, find the length of AB.



(4 marks)

7) In triangle ABC, A is (1, 5), B is $(-2, -3)$ and C is $(8, -2)$.

a. Find:

i. The gradient of BC

ii. The midpoint, P, of AB

iii. The midpoint, Q, of AC

(1 + 1 + 1 = 3 marks)