

# Academic

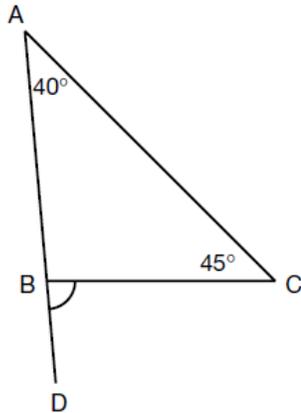
## Grade 9 Assessment of Mathematics

### Geometry Practice



Education  
Quality and  
Accountability  
Office

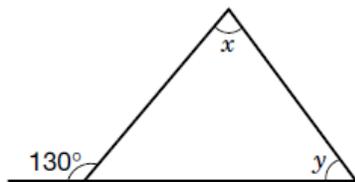
- 1 ABC is a triangle. AB is extended to D.



What type of angle is  $\angle CBD$ ?

- a A straight angle
- b An obtuse angle
- c An acute angle
- d A reflex angle

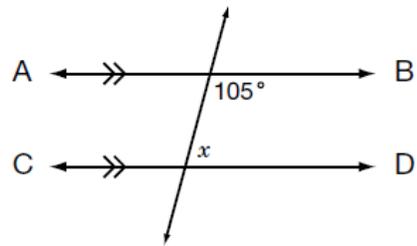
- 2 Pat draws this figure.



What is the relationship between the angles in this diagram?

- A  $y = x$
- B  $y = x + 50^\circ$
- C  $x + y = 50^\circ$
- D  $x + y = 130^\circ$

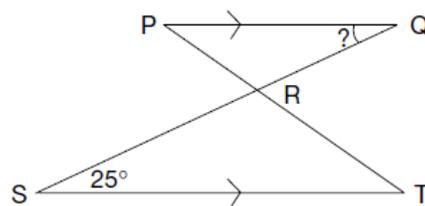
- 3 In the figure below, AB is parallel to CD.



What is the value of  $x$ ?

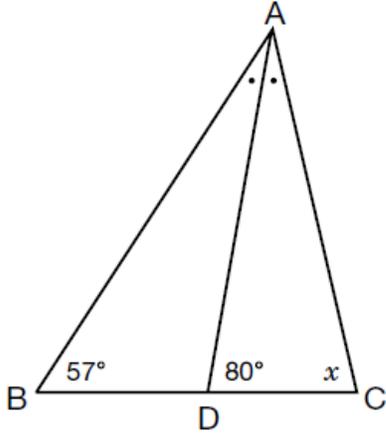
- A  $75^\circ$
- B  $85^\circ$
- C  $95^\circ$
- D  $105^\circ$

- 4 If PQ is parallel to ST, what is the measure of  $\angle PQR$ ?



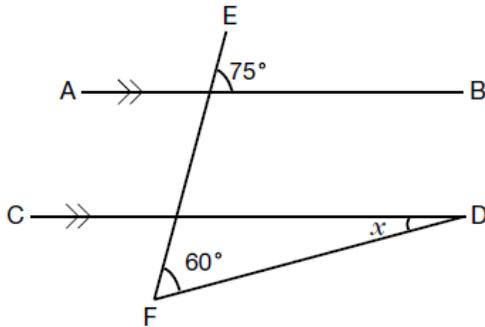
- A  $25^\circ$
- B  $35^\circ$
- C  $60^\circ$
- D  $120^\circ$

- 5 AD is the angle bisector of  $\angle BAC$ .  
 $\angle ABD = 57^\circ$  and  $\angle ADC = 80^\circ$ .  
 What is the value of angle  $x$ ?



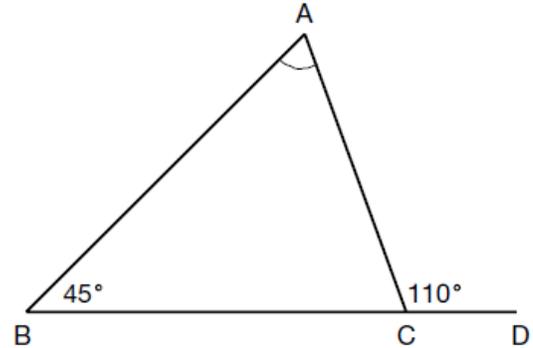
- F  $50^\circ$
- G  $57^\circ$
- H  $70^\circ$
- J  $77^\circ$

- 6 What is the value of  $x$ ?



- A  $15^\circ$
- B  $30^\circ$
- C  $45^\circ$
- D  $60^\circ$

- 7 In the figure,  $\angle B = 45^\circ$  and BC is produced to D.



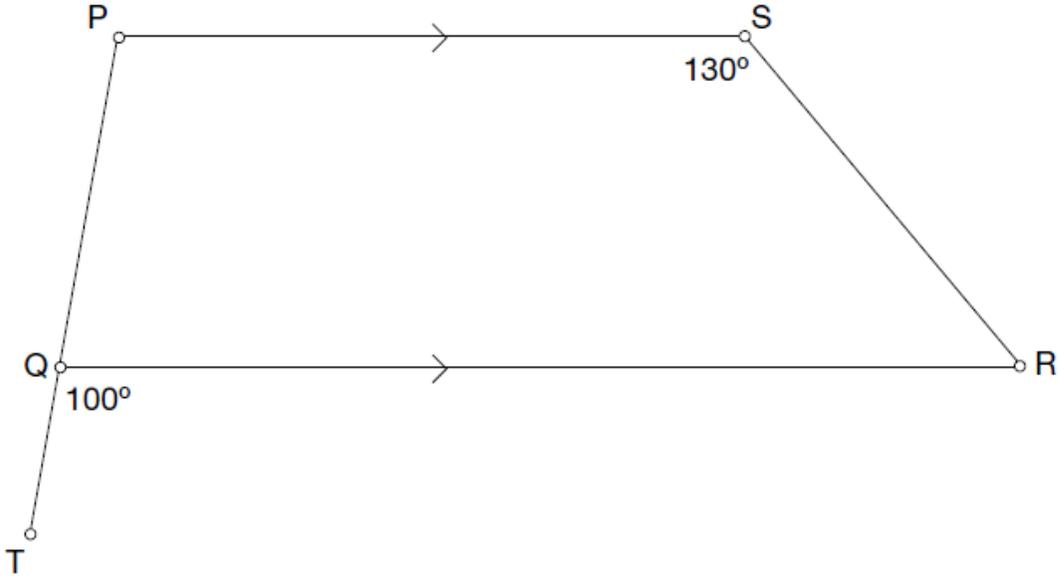
If  $\angle ACD = 110^\circ$ , what is the measure of  $\angle A$ ?

- F  $45^\circ$
- G  $55^\circ$
- H  $65^\circ$
- J  $75^\circ$

**8** **Quadrilateral Quandary**

In quadrilateral PQRS, segment PS is parallel to segment QR. Some of the angles are known.

**Explain** how to use geometric properties to determine the measures of  $\angle P$  and  $\angle R$ .

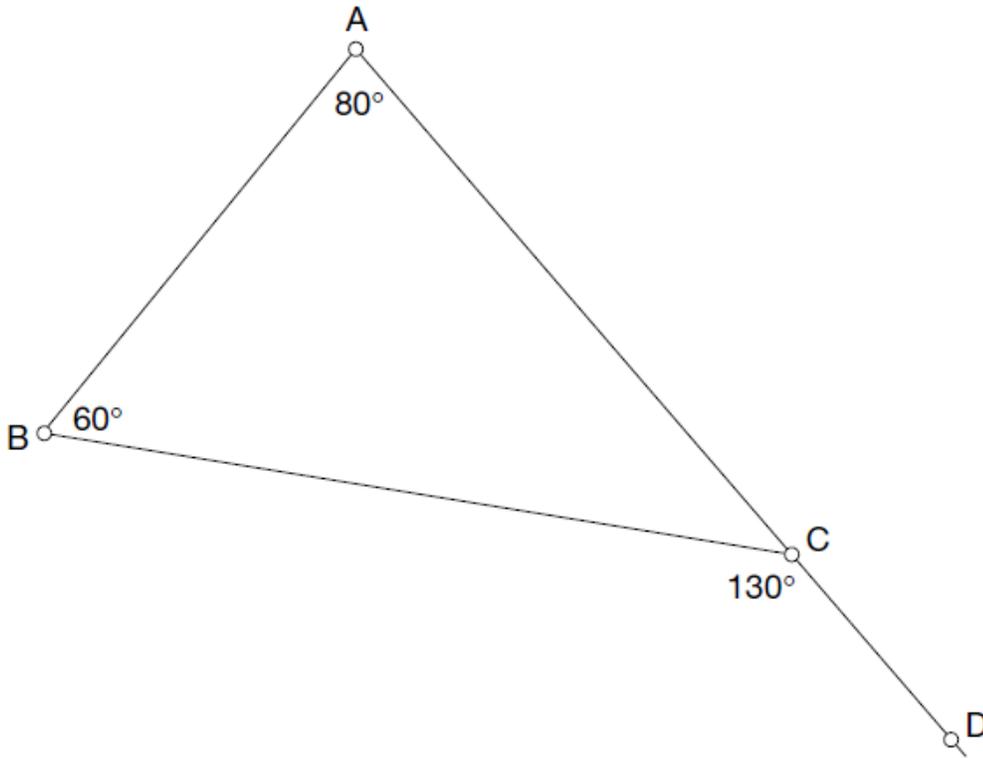


Angle Measure	Explanation
$\angle P =$	
$\angle R =$	

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**Mathematical Mistake**

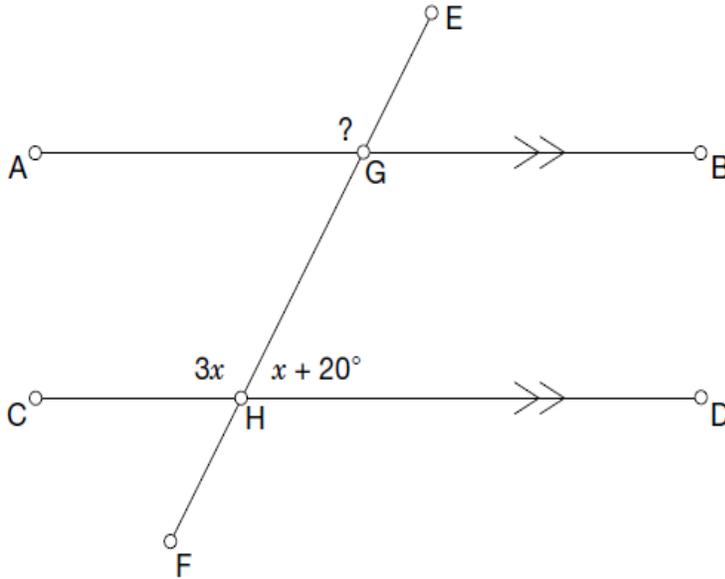
There is an error in this diagram. **Describe** the error and give **reasons for your answer**.



**10 Parallel Problem**

In the diagram below:

- $\angle DHG = x + 20^\circ$
- $\angle GHC = 3x$
- $AB \parallel CD$



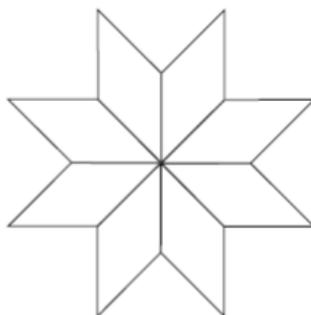
Determine the **measure** of  $\angle EGA$ .

Justify your answer

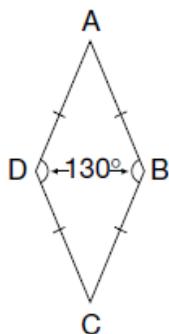
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**Geometric Quilts**

Paul's grandmother wants to use quilt pieces to make an **eight-pointed star** like the one shown.

**Eight-Pointed Star**

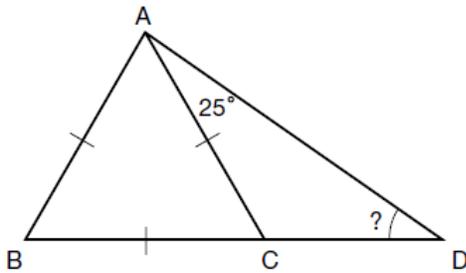
Her quilt pieces are in the shape of a rhombus with two angles of  $130^\circ$ .

**Quilt Piece**

Is it possible to make an **eight-pointed star** using copies of her quilt piece?

Justify your answer

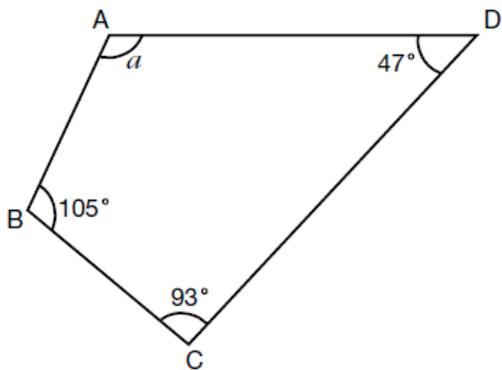
- 12 ABC is an equilateral triangle. BC is extended to D so that  $\angle CAD = 25^\circ$ .



What is the measure of  $\angle ADC$ ?

- a  $25^\circ$
- b  $35^\circ$
- c  $45^\circ$
- d  $55^\circ$

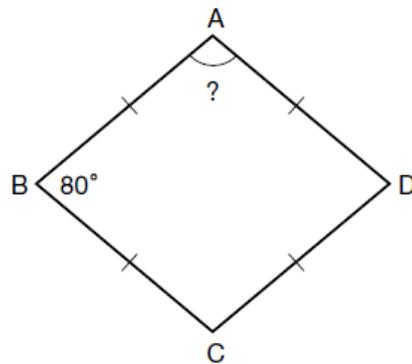
- 13 ABCD is a quadrilateral.



What is the value of  $a$ ?

- a  $105^\circ$
- b  $115^\circ$
- c  $120^\circ$
- d  $125^\circ$

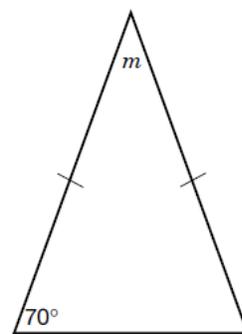
- 14 ABCD is a quadrilateral with all sides the same length.  $\angle B = 80^\circ$ .



What is the measure of  $\angle A$ ?

- a  $80^\circ$
- b  $90^\circ$
- c  $100^\circ$
- d  $110^\circ$

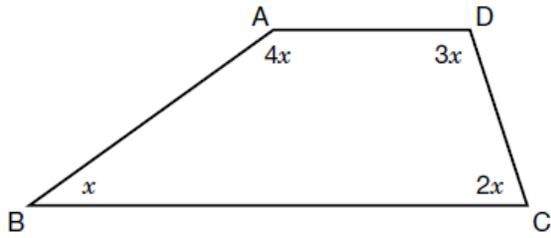
- 15 The figure below shows an isosceles triangle.



What is the value of  $m$ ?

- a  $40^\circ$
- b  $50^\circ$
- c  $60^\circ$
- d  $70^\circ$

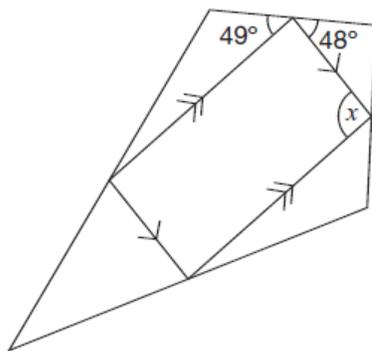
- 16 ABCD is a quadrilateral.



What is the measure of  $\angle BAD$ ?

- F  $108^\circ$
- G  $120^\circ$
- H  $132^\circ$
- J  $144^\circ$

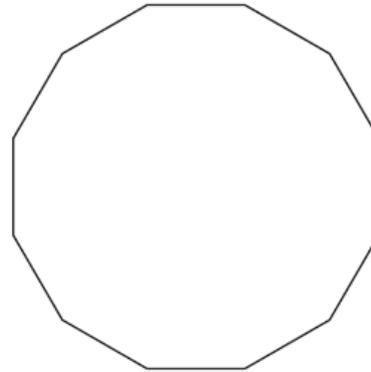
- 17 A parallelogram is inscribed in a quadrilateral as shown.



What is the value of  $x$ ?

- a  $48^\circ$
- b  $49^\circ$
- c  $83^\circ$
- d  $97^\circ$

- 18 What is the measure, in degrees, of the sum of the interior angles of a 12-sided regular polygon?



- a  $2160^\circ$
- b  $1800^\circ$
- c  $1500^\circ$
- d  $1080^\circ$

Answers

- 1] C
- 2] D
- 3] A
- 4] A
- 5] J
- 6] C
- 7] H
- 8]  $\angle P = 100^\circ$  using F-Pattern  
 $\angle R = 50^\circ$  using C-Pattern
- 9]  $\angle C = 40^\circ$  using SATT  
 $40 + 130 = 170^\circ$  not  $180^\circ$  (SAT)
- 10]  $X = 40^\circ$  (SAT),  $\angle EGA = 120^\circ$  (F-Pattern)
- 11]  $\angle A = 50^\circ$   
 $8(50^\circ) = 400^\circ$  but should equal  $360^\circ$  (RAT)
- 12] B
- 13] B
- 14] C
- 15] A
- 16] J
- 17] C
- 18] B



## Student Answer Sheet: Academic

- Enter your multiple-choice answers on this sheet
- To indicate your answer, use an HB pencil to fill in the circle completely, as shown below:

Like this: ● Not like this: ⊗ ⊘ ⊙ ⊛

- If you fill in more than one answer to a question, the question will be scored incorrect.
- Cleanly erase any answer you wish to change and fill in the circle for your new answer.

1. (a) (b) (c) (d)
2. (a) (b) (c) (d)
3. (a) (b) (c) (d)
4. (a) (b) (c) (d)
5. (f) (g) (h) (j)
6. (a) (b) (c) (d)

7. (f) (g) (h) (j)
8. Respond in booklet.
9. Respond in booklet.
10. Respond in booklet.
11. Respond in booklet.
12. (a) (b) (c) (d)

13. (a) (b) (c) (d)
14. (a) (b) (c) (d)
15. (a) (b) (c) (d)
16. (f) (g) (h) (j)
17. (a) (b) (c) (d)
18. (a) (b) (c) (d)

Print Student Name: \_\_\_\_\_

Student Signature: \_\_\_\_\_