

High School

Year
7

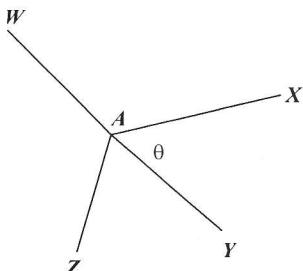
Mathematics Test –
Angle Properties

Calculator Test

Name _____

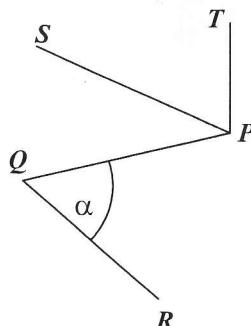
1. The angle marked θ could be labelled as :

- $\angle A$ $\angle XAY$
 $\angle WAX$ $\angle X$



2. The angle marked α could be labelled as :

- $\angle Q$ only $\angle PQR$ only
 Both $\angle PQR$ and $\angle Q$ Neither $\angle PQR$ nor $\angle Q$



3. Which is true about an angle which measures 56° ?

- It's complement is 34° .
 It is an obtuse angle.
 It's supplement is 134° .
 It is a right angle.

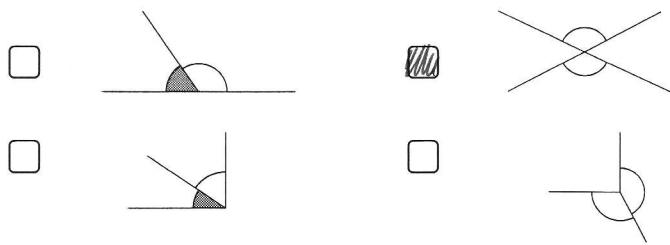
4. Complete the statement below.

Angles which measure 72° and 108° are supplementary.

5. The captain of a ship wants to make a large change in direction. To do this gradually, he turns the ship through 20° clockwise every 10 minutes. How many 20° turns are needed before he has turned through a reflex angle?

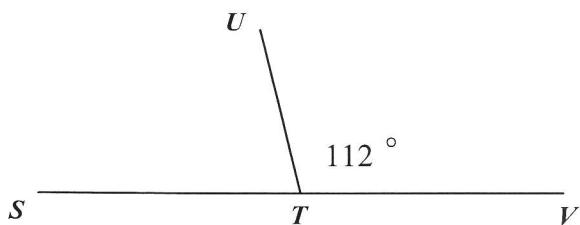
- 7 turns 9 turns 10 turns 11 turns

6. Which diagram shows a pair of vertically opposite angles?



7. What is the size of angle STU?

68°



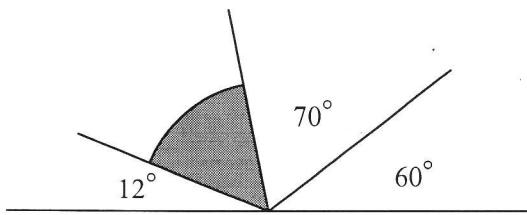
8. What is the size of the shaded angle?

38°

48°

142°

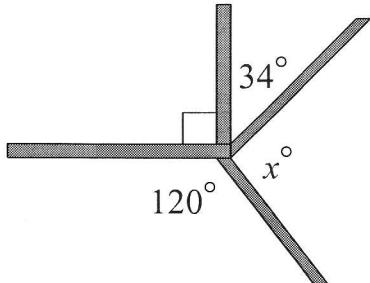
52°



9. Four struts of a bridge join at a point as shown.

What is the value of x ?

$x = \boxed{116}$ °



10. Two straight roads intersect at the angles shown.

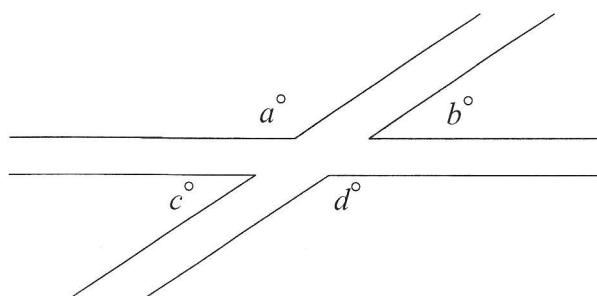
Which statement is **not** true?

$a = b$.

$a = d$.

$b = c$.

$a + b = 180$.

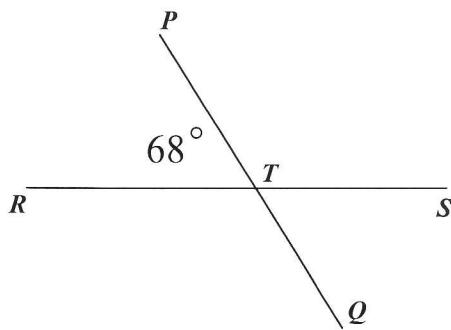


11. The lines PQ and RS intersect at T .

$$\angle PTR = 68^\circ$$

Which is true?

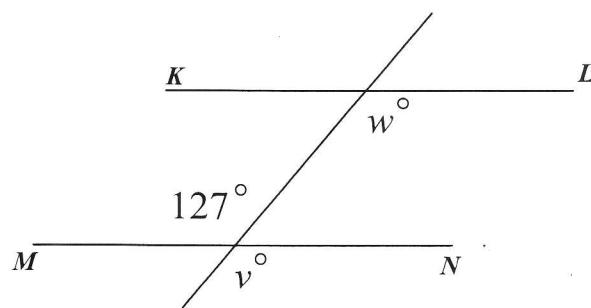
- $\angle PTS = 68^\circ$ and $\angle STQ = 68^\circ$
- $\angle PTS = 112^\circ$ and $\angle STQ = 68^\circ$
- $\angle PTS = 68^\circ$ and $\angle STQ = 112^\circ$
- $\angle PTS = 112^\circ$ and $\angle STQ = 112^\circ$



12. The lines KL and MN are parallel.

Which is true?

- $v = 53^\circ$ and $w = 53^\circ$
- $v = 53^\circ$ and $w = 127^\circ$
- $v = 127^\circ$ and $w = 53^\circ$
- $v = 127^\circ$ and $w = 127^\circ$



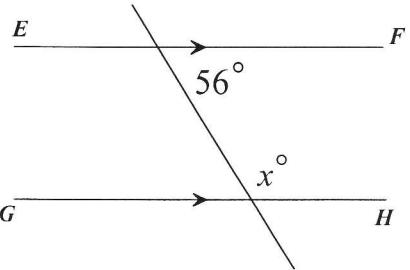
13. EF is parallel to GH . What is the value of x ?

34°

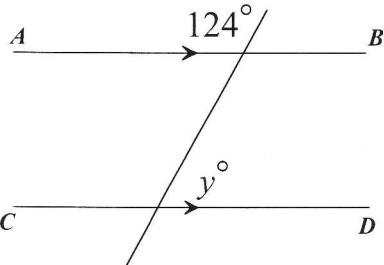
124°

56°

146°



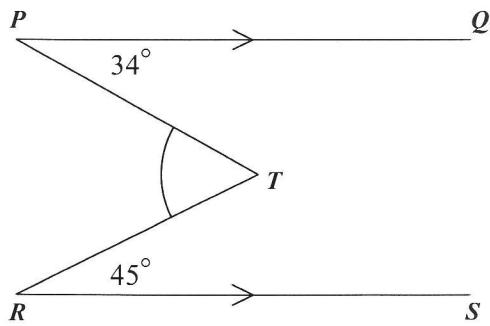
14. AB is parallel to CD .



What is the value of x ?

$$y = \boxed{56}^\circ$$

15. The lines PQ and RS are parallel lines.



What is the size of the acute $\angle PTR$?

34°

45°

79°

101°

16. EF is parallel to GH .

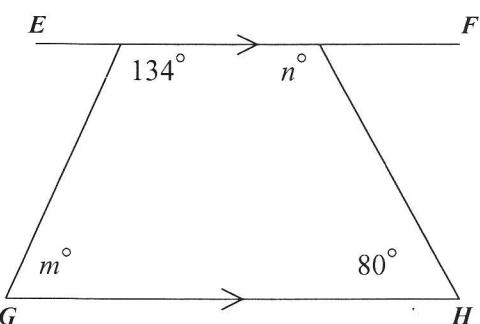
Which is true?

$m = 134^\circ$ and $n = 100^\circ$

$m = 46^\circ$ and $n = 100^\circ$

$m = 134^\circ$ and $n = 80^\circ$

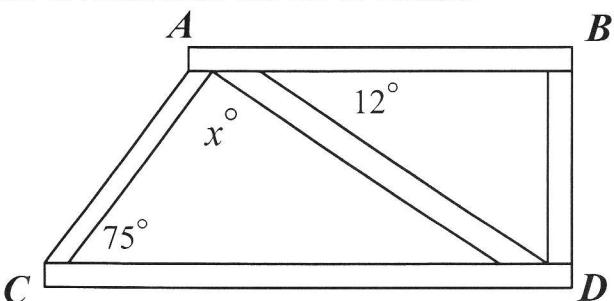
$m = 46^\circ$ and $n = 80^\circ$



17. A lighting rig is shown. Beams AB and CD are horizontal and BD is vertical.

What is the value of x ?

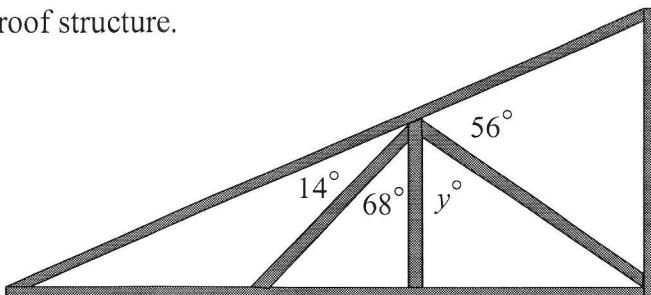
$$x = \boxed{93}^\circ$$



18. The diagram shows part of a roof structure.

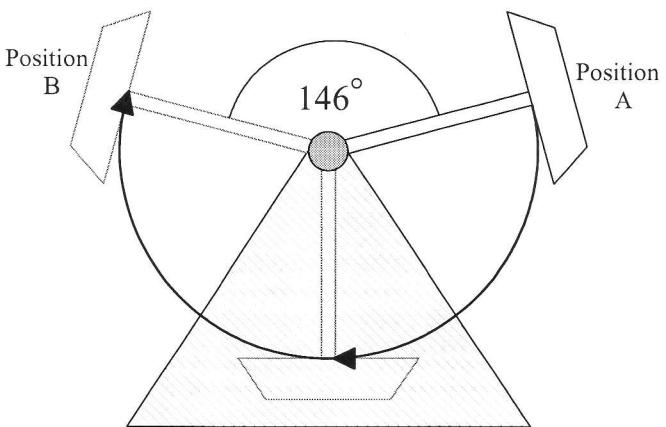
What is the value of y ?

$$y = \boxed{42}^\circ$$



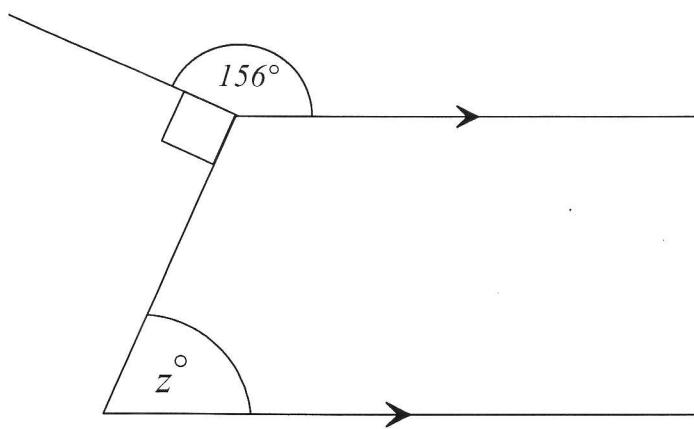
19. A ride at a fun park swings back and forth as shown. What angle does the ride turn through in going from Position A to Position B?

- 214° clockwise.
 214° anticlockwise.
 107° clockwise.
 146° anticlockwise.



20. What is the value of z ?

$$z = \boxed{66}^\circ$$



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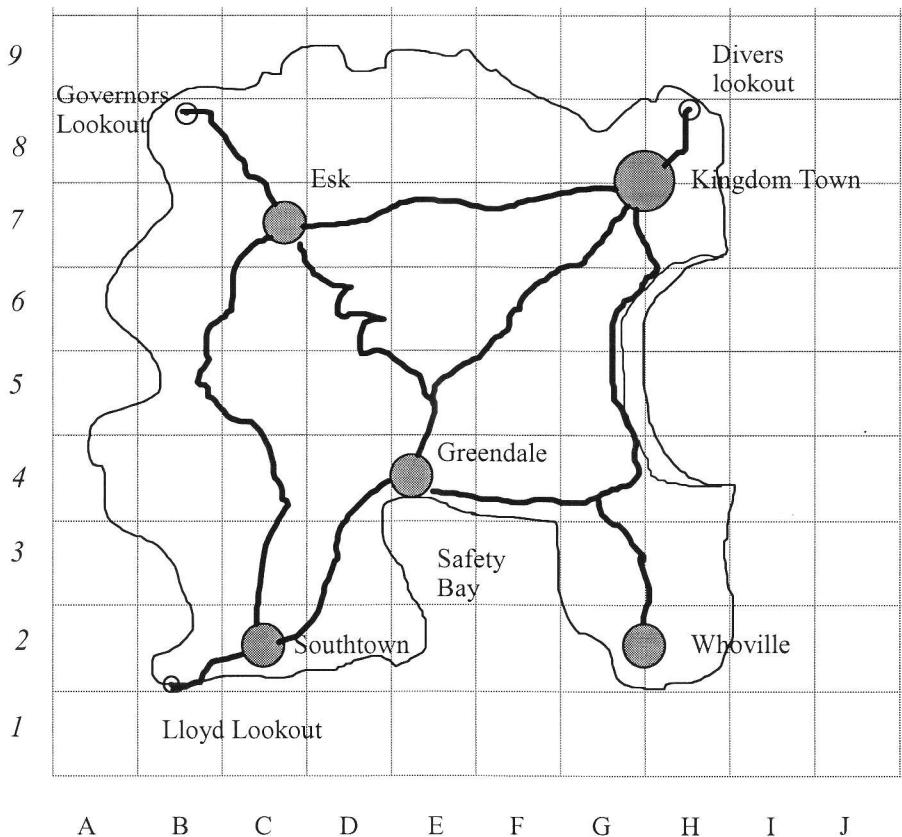
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Mathematics Test –
Location

Non Calculator Test

Name _____

Compass Island



Questions 1 to 4 refer to the map above.

1. What is located at the grid reference C2?

Lloyd Lookout

Southtown



Safety Bay

Whoville

2. What is the grid reference of Greendale?

E4

3. Which lookout could be described as being at the Southwest corner of the island?

Lloyd Lookout

4. What town is NW of Whoville and N of Southtown?

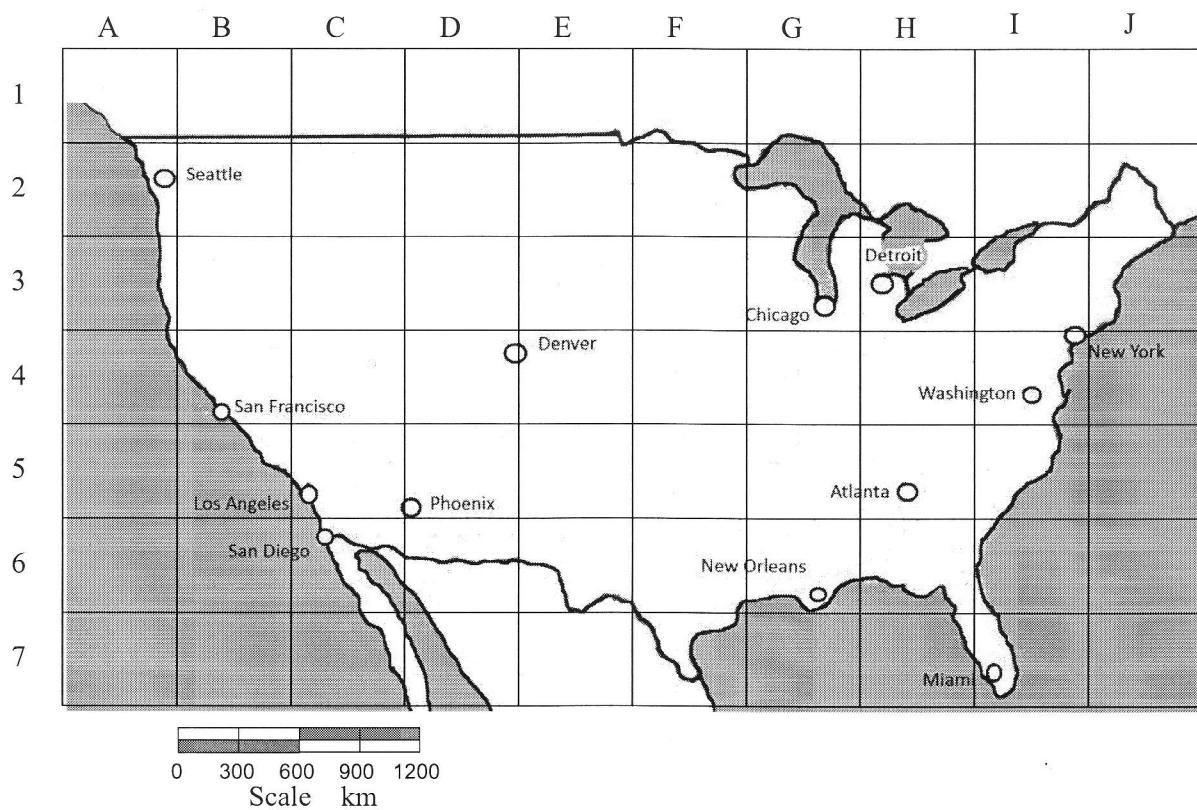
Greendale

Southtown

Esk



Kingdom Town

**Questions 5 to 9 refer to the map of the USA.**

5. What cities are at grid references I4 and A2?

<input type="checkbox"/> Seattle and Atlanta	<input type="checkbox"/> Detroit and Seattle
<input checked="" type="checkbox"/> Washington and Seattle	<input type="checkbox"/> Detroit and San Francisco

6. From the map, how far is it from Washington to Phoenix to the nearest 300 km?

3000 km.

7. What city is about 1000 km SW of Washington?

Atlanta.

8. What city is NE of New Orleans and South of Detroit?

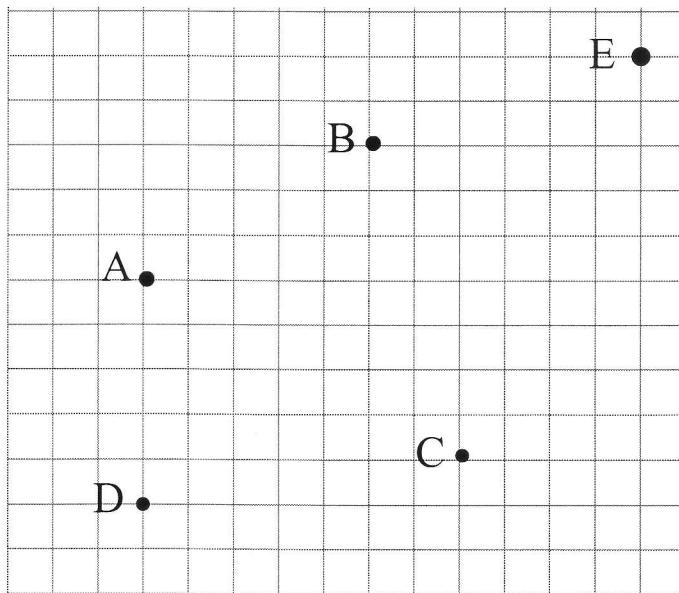
<input checked="" type="checkbox"/> Atlanta	<input type="checkbox"/> Miami
<input type="checkbox"/> Washington	<input type="checkbox"/> New York

9. A City lies North of San Diego and West of Detroit. What is its grid reference?

C3

Katie lives at A and travels 3 km North and 5 km East to B.

She records this trip as 3N, 5E.



- 10 Which of these trips would get Katie back from B to A

2W,2S,3W
 1S, 2W, 2S, 1W

2E, 1N, 3E, 2N
 2W, 1S, 3W, 2S

- 11 Noah starts at C and travels 4W,2N,3W,2N. Where would he finish his journey?

A

B

D

E

- 12 Which of these trips would get Owen from D to E

12E,4N,1W, 6N
 7N, 2W, 3N, 9W

8E, 3N, 3E, 7N
 10E, 1S, 1W, 9S

- 13 Poppy starts at B and travels 8W,2N,3E,10S. Where would she finish her journey?

A

C

D

E

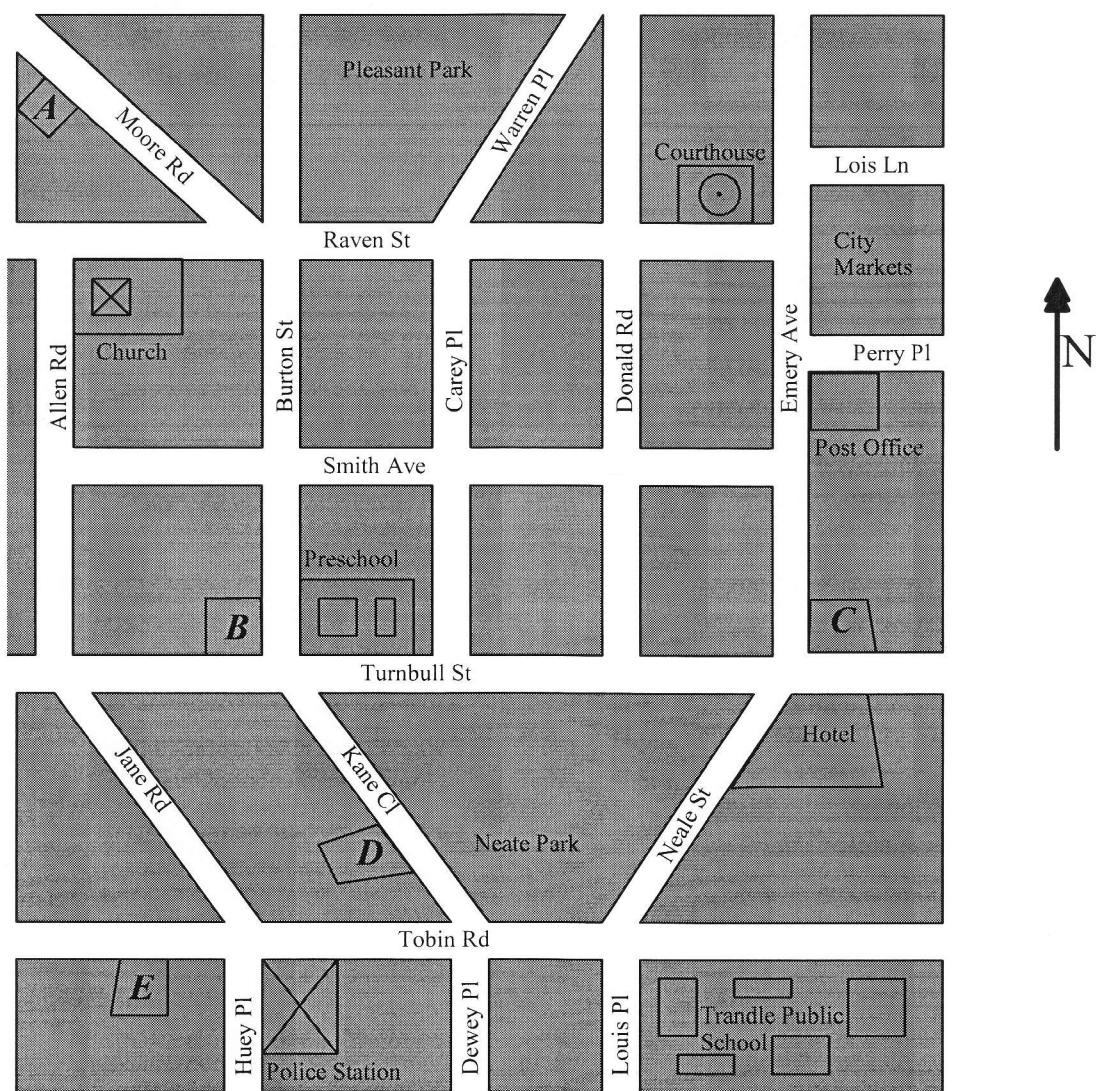
- 14 Quentin wants to go from D to E in a trip with five legs.

The first three legs are given below. Complete the last two legs.

7E, 3N, 4N, 4E, 3N

OR 3N 4E

Map of Trandle City Centre



Scale 1cm : 40 m

Questions 15 to 22 refer to the map above of Trandle City Centre.

- 15 Carla lives at C and Anna lives at A. What direction is Anna's home from Carla's?

SW

NE

NW

SE

- 16 Bridget lives at B. Approximately how far is it from Bridget's home to Carla's home?

300 m

350 m

500 m

700 m

- 17 What direction would Carla walk along Neale St from her home to get to Trandle Public School?

SW

NE

NW

SE

- 18 Della lives at D and Elizabeth lives at E. Elizabeth travels from her home to Anna's home, passing Della's home on the way. Complete the directions below.

She walks east along Tobin Rd, then N West along Kane Cl, then north along Burton St and finally N West along Moore Rd till she reaches Anna's home.

- 19 Frances lives on a street which runs east-west.
Her home is south of the courthouse and east of the preschool.
What street does Frances live in?

Raven St

Smith Ave

Turnbull St

Tobin Rd

- 20 What is the shortest distance that it would take to walk from Anna's Home to the Post Office?

480 metres

- 21 Bridget leaves her home and walks 2 blocks north on Burton street, then turns right and walks 3 blocks east and then turns right again and walks 2 blocks south.

Whose home is she near at this point?

Anna's

Carla's

Della's

Elizabeth's

- 22 Gail lives on a street which runs northwest.
Her home is south of the church and west of the hotel.
What street does Gail live in?

Moore Rd

Neale St

Jane Rd

Kane Cl

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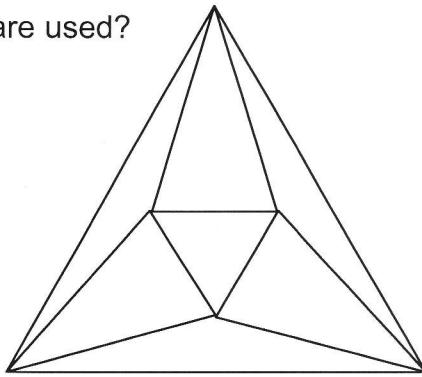
Mathematics Test –
Polygons and Circles

Calculator Test

Name _____

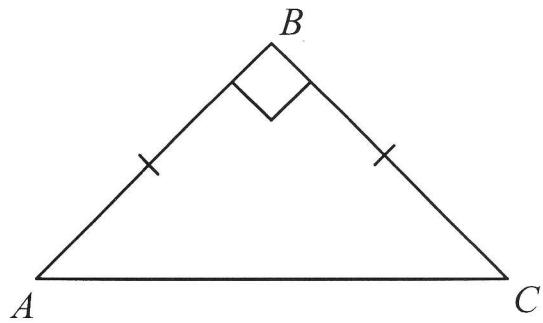
1. In the pattern below, which types of triangle are used?

- Scalene and isosceles.
- Scalene and equilateral.
- Equilateral and isosceles.
- Right and isosceles.

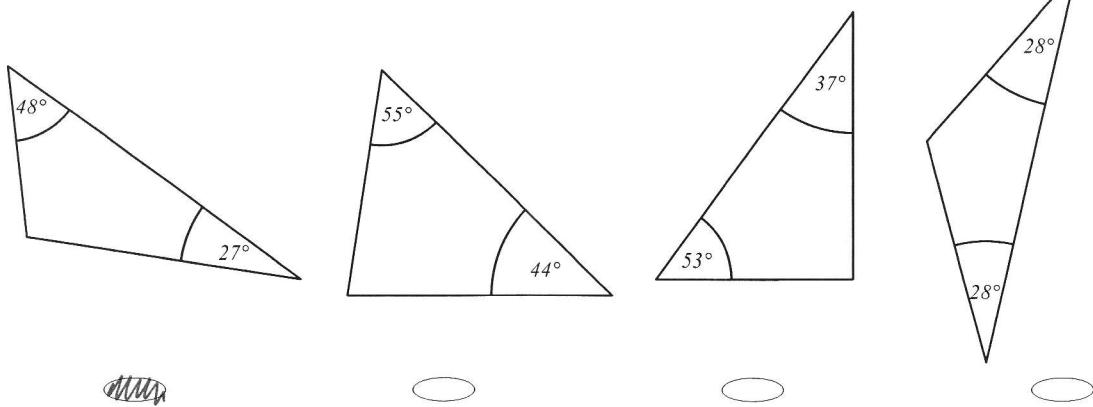


2. Triangle ABC is a

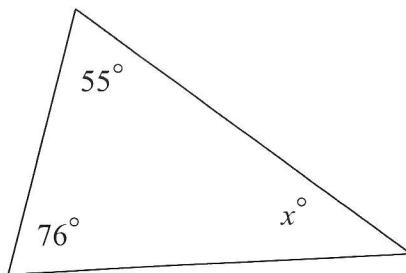
- Right isosceles triangle.
- Acute equilateral triangle.
- Obtuse isosceles triangle.
- Right scalene triangle.



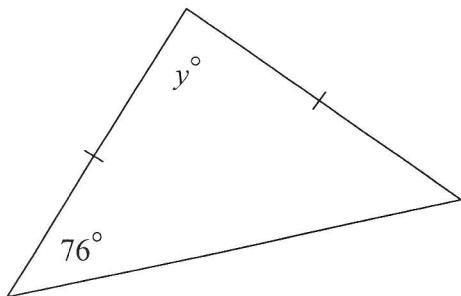
3. Which triangle below is an obtuse scalene triangle?



4. The value of x is:

 41° 21° 49° 229°

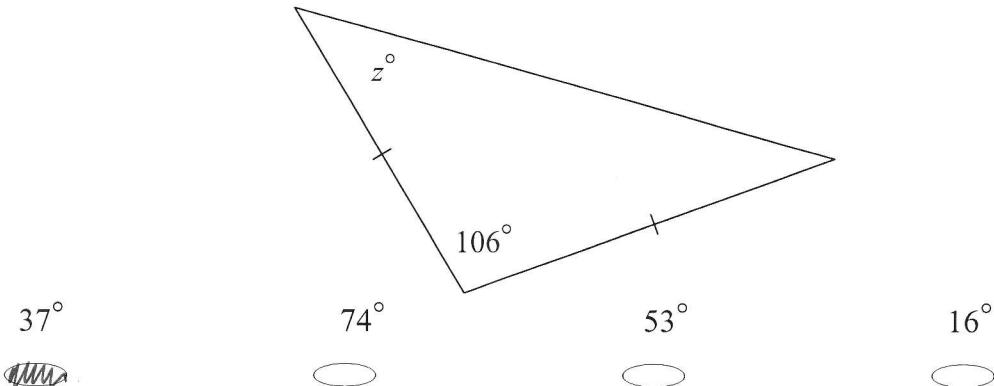
5. Find the value of y in the diagram below.



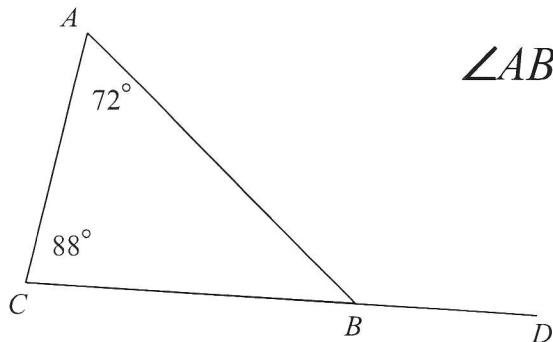
$$y =$$

28°

6. Find the value of z in the diagram below.

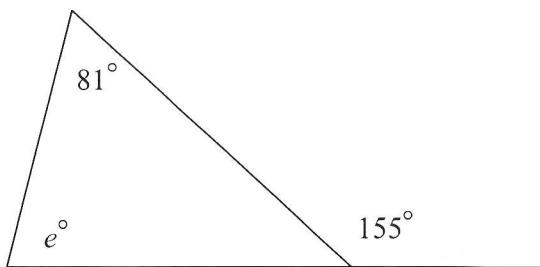
 37° 74° 53° 16°

7. Find the size of the exterior angle ABD below.



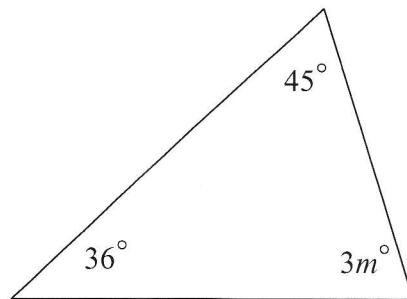
$$\angle ABD = \boxed{160^\circ}^\circ$$

8. The value of e in the diagram below is



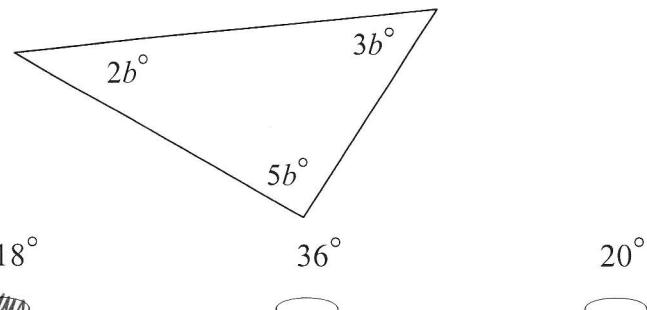
99° 25° 74° 37°

9. The value of m is:



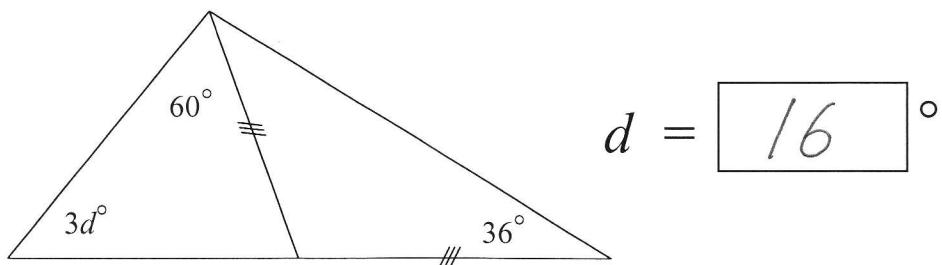
81° 99° 27° 33°

10. Find the value of b in the diagram below.



10° 18° 36° 20°

11. Find the value of d in the diagram below.



12. A quadrilateral has these properties.

The diagonals are equal in length and bisect each other at right angles.

The quadrilateral is

a rhombus.



a rectangle.



a kite.

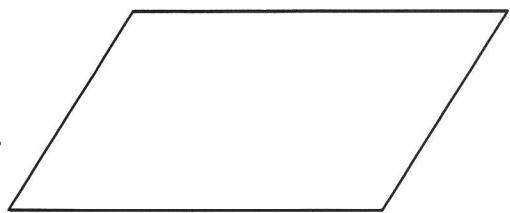


a square.

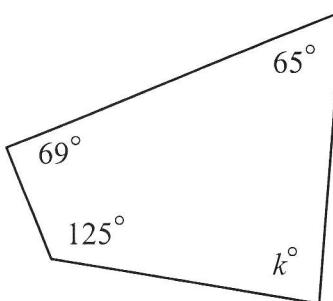


13. Which of the following is not a property of a parallelogram?

- The opposite sides are equal.
- Has two axes of line symmetry.
- The diagonals bisect one another.
- The opposite angles are equal.



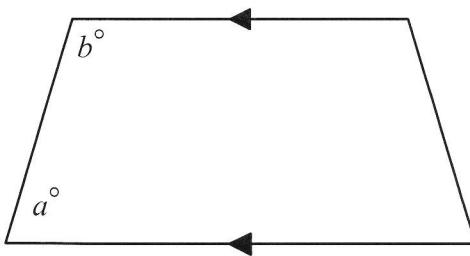
14. Find the value of k in the quadrilateral below.



$$k = \boxed{101}^\circ$$

15. The angles marked a° and b° in the trapezium below are:

- both obtuse.
- complementary.
- equal.
- supplementary.



16. Which of the quadrilaterals below does not have diagonals which bisect one another?

A rhombus.



A parallelogram.



A kite.

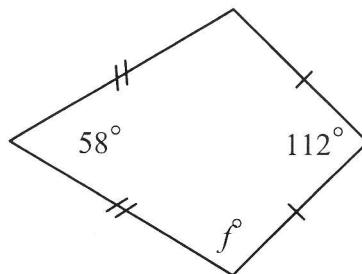


A rectangle.

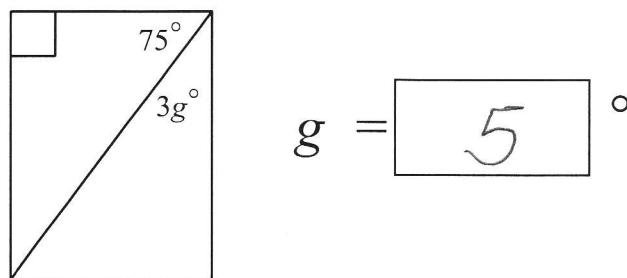


17. Find the value of f in the kite below.

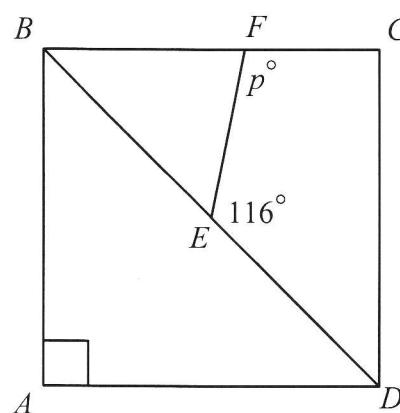
- 54°
- 170°
- 95°
- 190°



18. What is the value of g in the rectangle below?



19. $ABCD$ is a rectangle. E is a point on the diagonal BD and F is a point on the side BC . The value of p is:



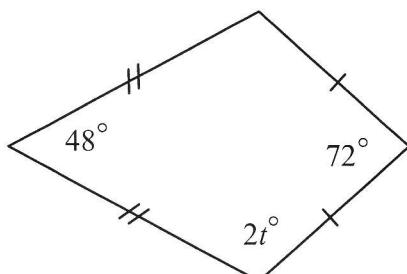
109

251

116

64

20. What is the value of t in the kite below?



$$t = \boxed{60}^\circ$$

21. Which of the statements below about a circle are true?

- Statement A The radius drawn anywhere in a given circle is always the same length.
 Statement B A chord divides a circle into two regions called the major and minor sectors.



Only statement A is true.



Only statement B is true.



Both statements are true.



Neither statement is true.

22. Which of the features are not shown on the circle shown at right?



A tangent.



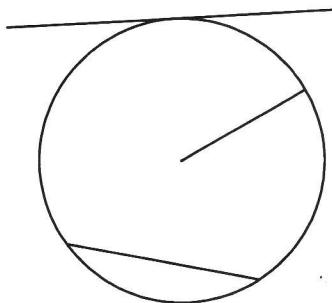
A diameter.



A chord.



A radius.



23. The two shaded regions on the circle at right are:



a sector and a semicircle.



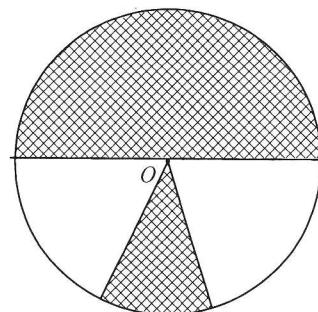
a segment and a semi circle.



a quadrant and a sector.

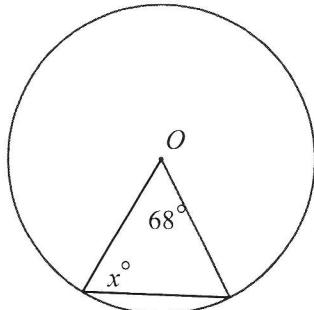


a quadrant and a segment.



24. Find the value of x in the circle shown.

$$t = \boxed{56^\circ}$$



25. What are the values of a and b in the circle shown?



$a = 104$ and $b = 76$



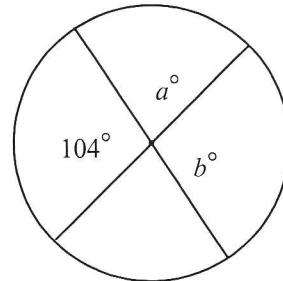
$a = 104$ and $b = 104$



$a = 76$ and $b = 76$



$a = 76$ and $b = 104$



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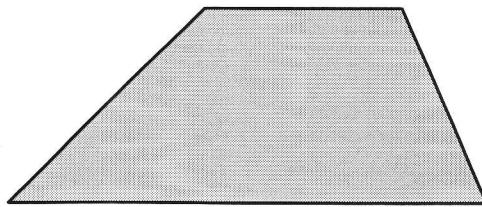
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Test – Shapes

Name _____

Use a ruler to draw all straight lines.

1. The shape shown is a :



Rhombus

Rectangle

Parallelogram

Trapezium

2. A triangle which has no sides which are equal in length is called :

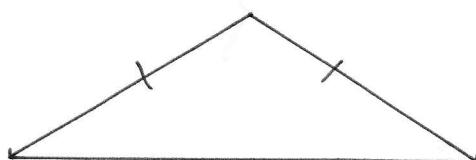
a scalene triangle

an isosceles triangle

an equilateral triangle

a reflex triangle

3. Use a ruler to draw a sketch of an isosceles triangle:



Any isosceles Δ is okay.

4. Which is not true of a rectangle?

Opposite sides are equal

All angles are right angles.

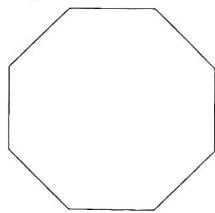
Four axes of line symmetry.

Rotational symmetry, order 2.

5. Use a number between 1 and 10 to correctly complete the statement below:

You can draw exactly 2 diagonals in any quadrilateral.

6. Which is an accurate description of the shape shown below?

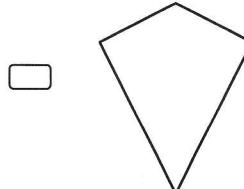
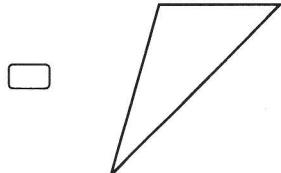
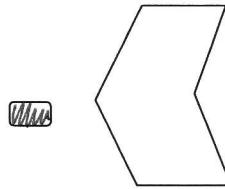
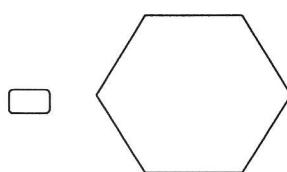


- A regular hexagon.
 An irregular hexagon.
 An irregular octagon.
 A regular octagon.

7. Use a number between 1 and 20 to correctly complete the statement below:

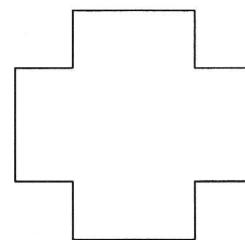
You can draw exactly 9 diagonals in any hexagon.

8. Which shape below is a non convex polygon?



9. The shape shown at right has :

- Four axes of line symmetry and point symmetry.
 Two axes of line symmetry and no point symmetry.
 Four axes of line symmetry and no point symmetry.
 Eight axes of line symmetry and point symmetry.



10. What order of rotational symmetry does a parallelogram have?

2



1



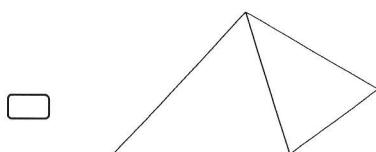
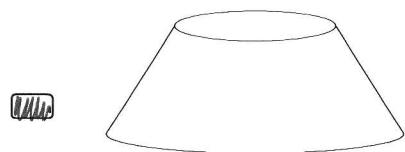
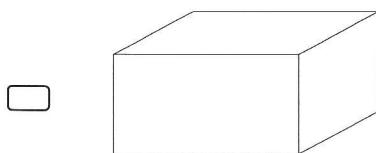
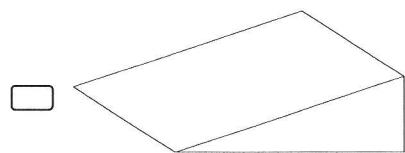
4



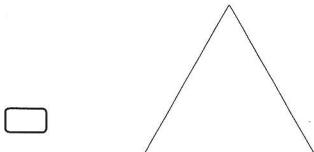
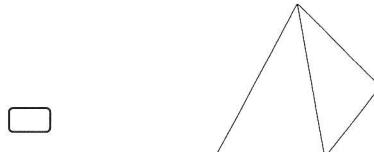
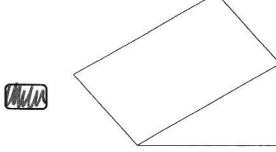
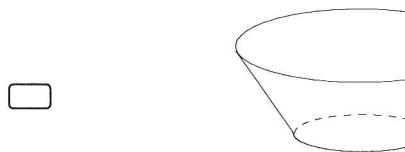
8



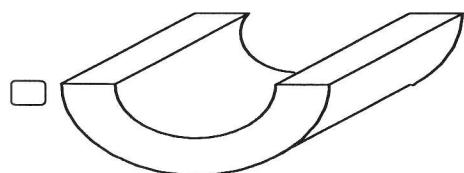
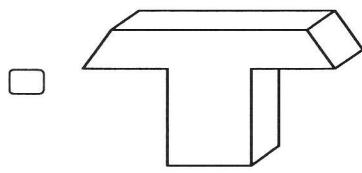
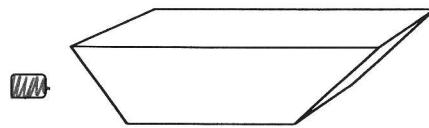
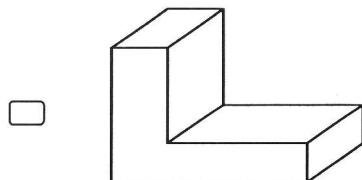
11. Which solid below is not a polyhedron?



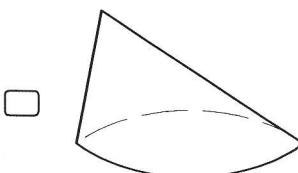
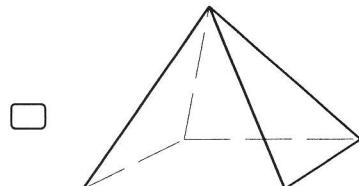
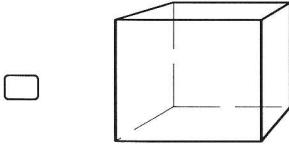
12. Which solid below is a prism?



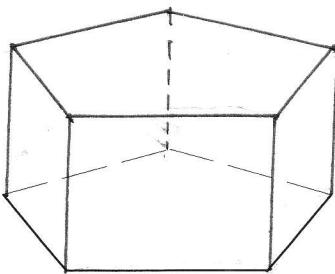
13. Which solid below is convex?



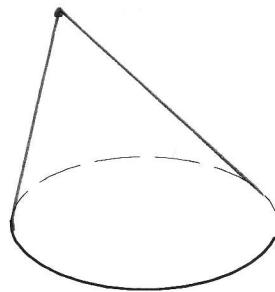
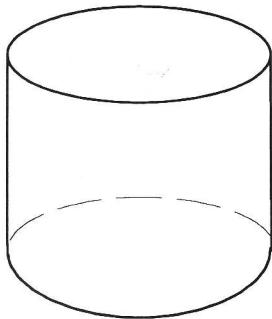
14. Which shape below is an oblique pyramid?



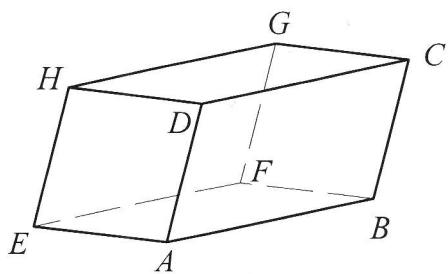
15. Use the base below to draw a sketch of a right pentagonal prism.



16. A right cylinder is shown below. Using the base drawn beside it, draw an oblique cone with the same height as the cylinder.

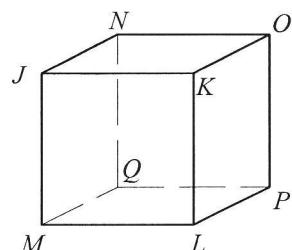


17. The faces $ABCD$ and $AEHD$ of the solid below, are parallelograms. Which statement is true?

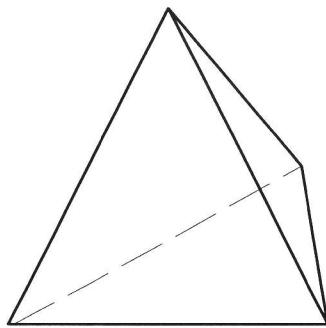


- AD and BC are parallel lines and AD and EH are skew lines.
- AD and BC are skew lines and AD and EH are parallel lines.
- AD and BC are parallel lines and AD and GC are skew lines.
- AD and BC are skew lines and AD and GC are parallel lines.

18. The solid shown is a cube. Which of the edges listed below is parallel to JK , intersects with LP and is skew with NQ ?

 LM  QP  NO  OP 

19. How many vertices and edges does the solid shown below have?



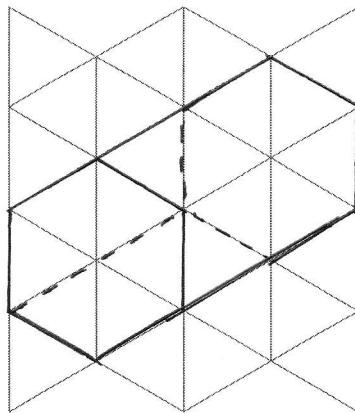
4
6

vertices
edges

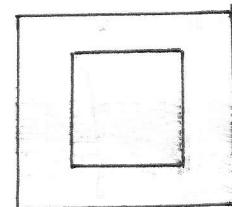
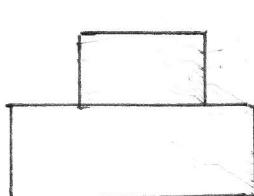
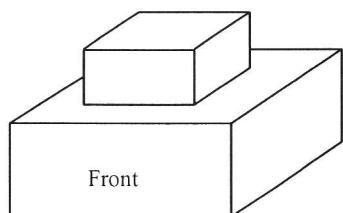
20. Complete the table below to illustrate Euler's rule for a rectangular Prism.

A Rectangular Prism	
Faces (F)	6
Vertices (V)	8
Edges (E)	12
$F + V - E$	2

21. Use a ruler and the isometric grid below to complete a neat sketch of a hexagonal prism.

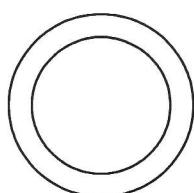


22. Beside the solid below, use a ruler to draw its front view (elevation) and top view (plan).

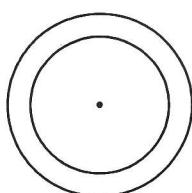


Dimensions not important.

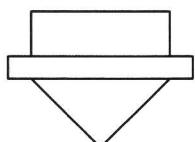
23. Draw a three dimensional sketch of the solid represented below.



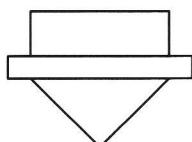
Top View



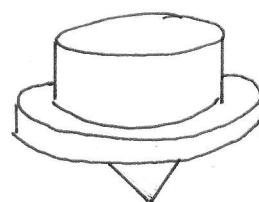
Bottom View



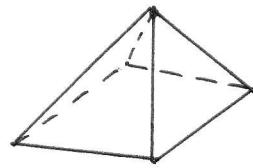
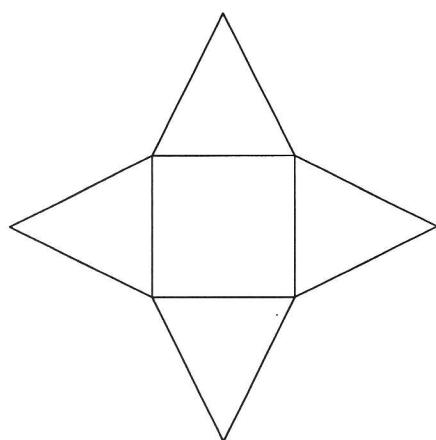
Front View



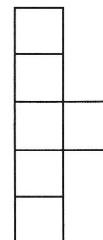
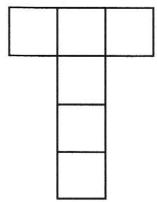
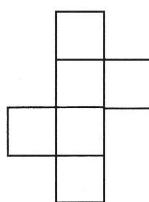
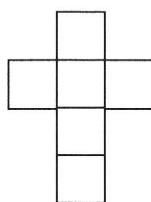
Side View



24. Draw a three dimensional sketch of the solid whose net is shown below.



25. Which of the following nets could not be folded to produce a cube?



High School

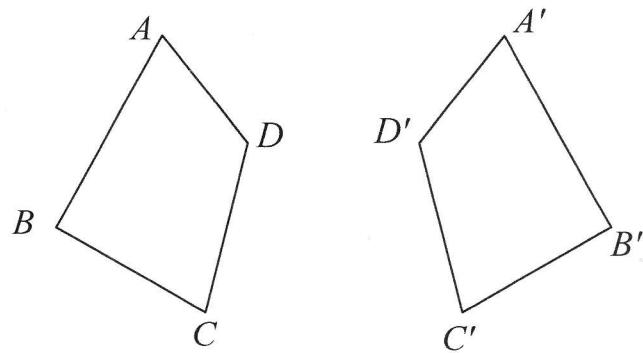
Year 8 Mathematics Test – Transformations and Congruence

Calculator Test

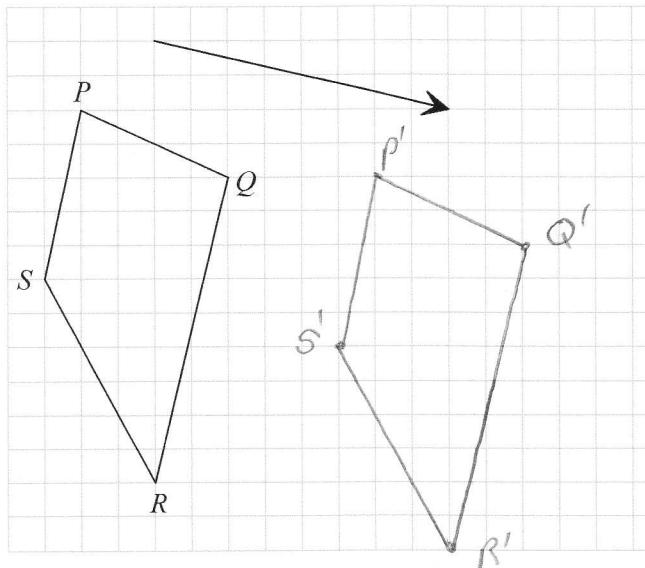
Name _____

1. The figure $ABCD$ could be transformed to the figure $A'B'C'D'$ by:

- Rotation through 180° .
- Reflection.
- Translation.
- Rotation through 90° .

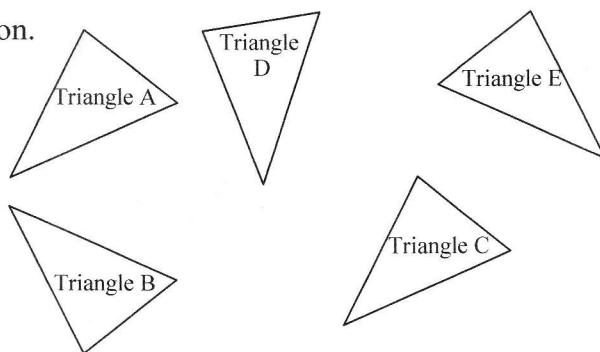


2. Use geometric instruments to draw the image after $PQRS$ is translated in the direction and distance indicated by the arrow.

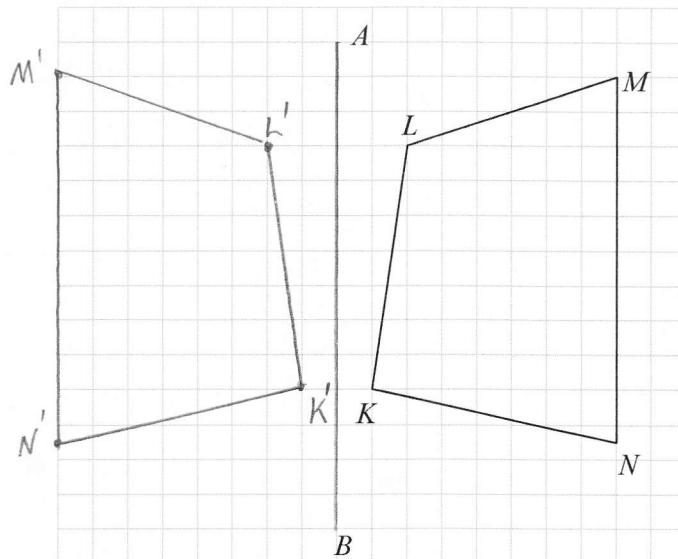


3. Triangle A is translated to a new position.
Which triangle could be the image?

- Triangle B.
- Triangle C.
- Triangle D.
- Triangle E.

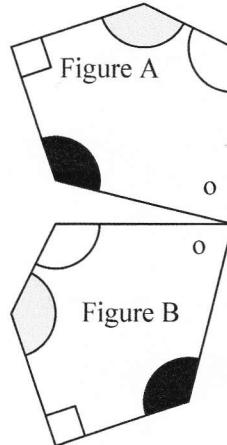


4. Use geometric instruments to draw the image after $KLMN$ is reflected in the line AB .

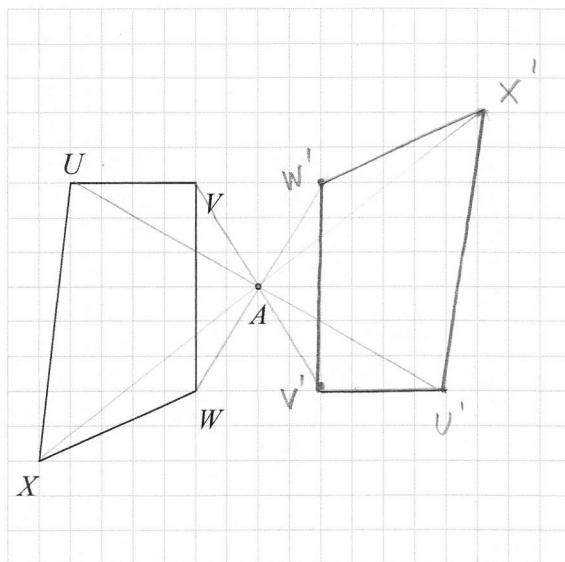


5. Figure A is transformed to Figure B by which transformation?

- Anticlockwise rotation through 180° .
- Anticlockwise rotation through 90° .
- Clockwise rotation through 180° .
- Clockwise rotation through 90° .

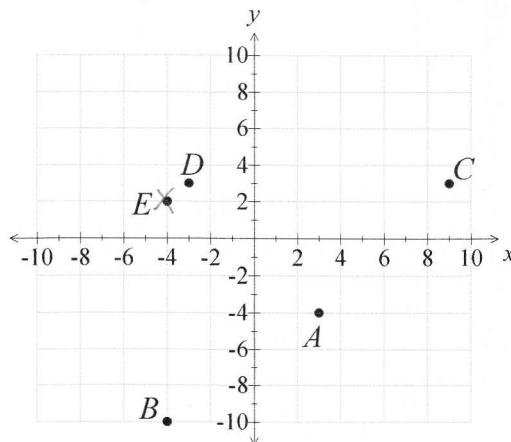


6. Use geometric instruments to draw the image after $UVWX$ is rotated through 180° in a clockwise direction about A .

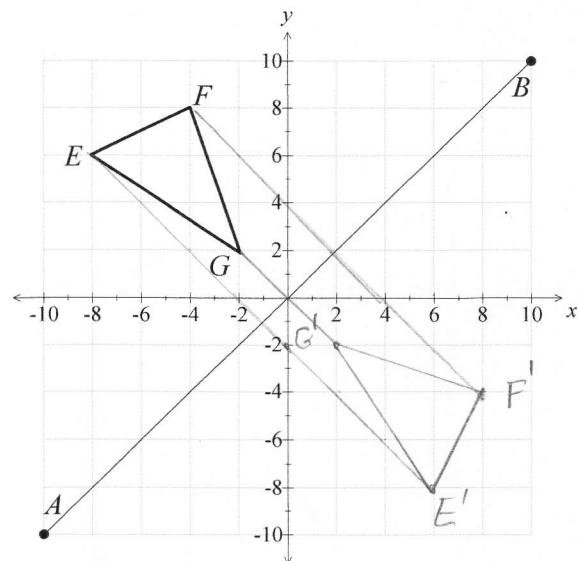


7. The point A (3, -4) is translated 7 units to the left and then 6 units directly upward. Which point is the image after these two transformations?

- B (-4, -10)
- C (9, 3)
- D (-3, 3)
- E (-4, 2)

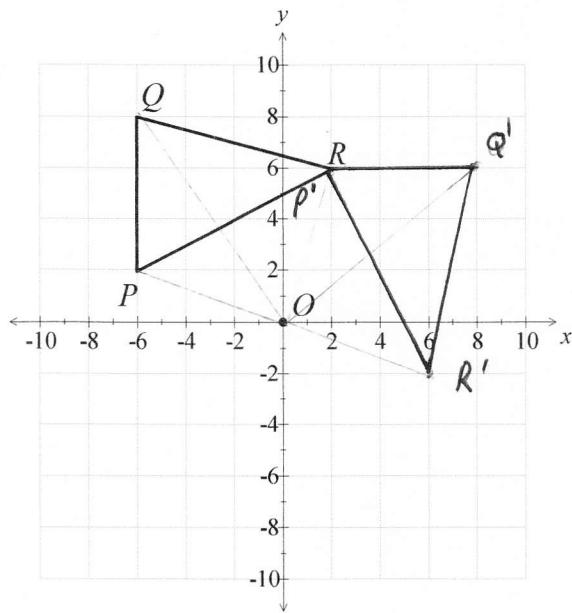


8. Sketch the position of triangle EFG after it is reflected in the line AB.

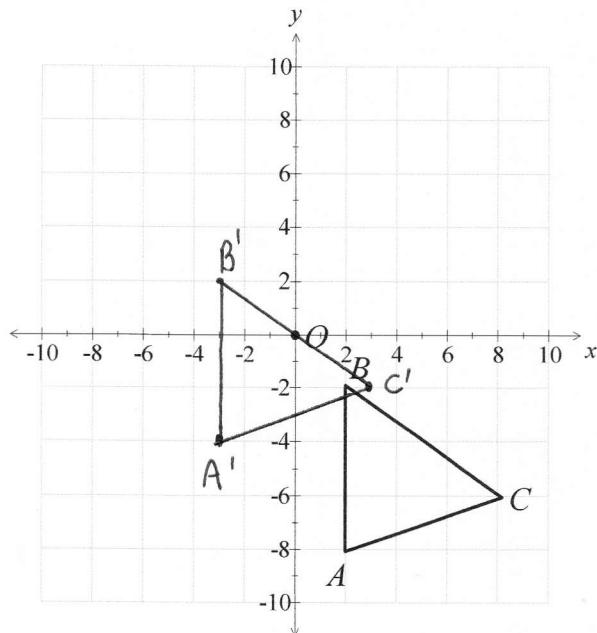


9. Sketch the position of triangle PQR after it is rotated through 90° about the origin O.

1 clockwise.

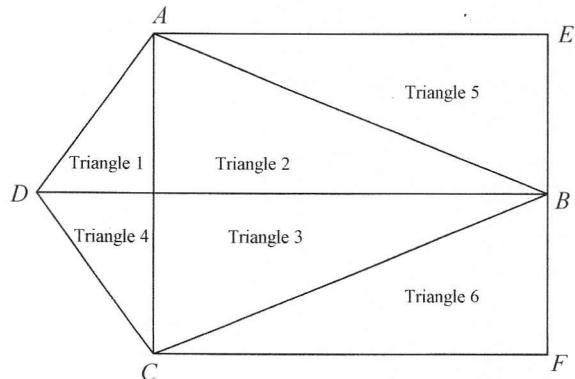


10. Sketch the position of triangle ABC after it is translated 5 units to the left and 4 units upward.

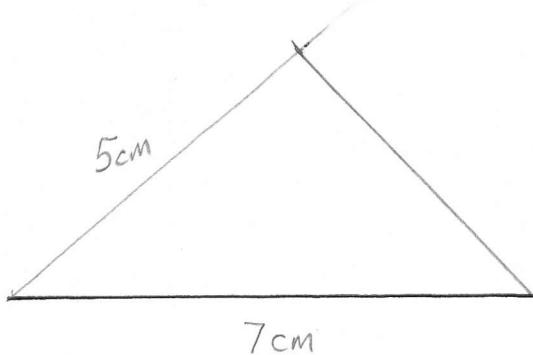


11. $ABCD$ is a kite and $AEFC$ is a rectangle. Which pairs of triangles are not congruent?

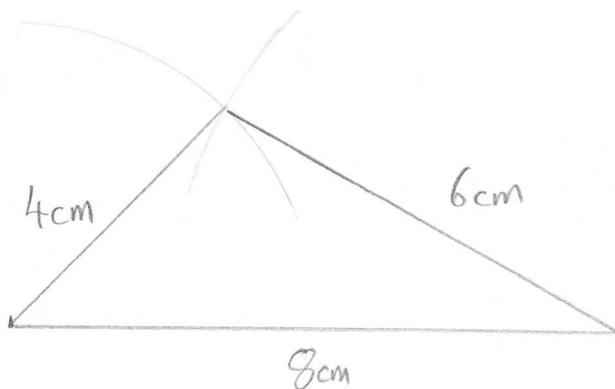
- Triangle 1 and Triangle 2
- Triangle 2 and Triangle 5
- Triangle 1 and Triangle 4
- Triangle 5 and Triangle 6



12. Use a protractor and a ruler to construct a triangle which has sides of 5 cm and 7 cm with an included angle of 40° .



13. Use a compass and a ruler to construct a triangle which has sides of 4 cm, 6 cm and 8 cm.



The abbreviations below are used for congruence tests for triangles in the following questions.

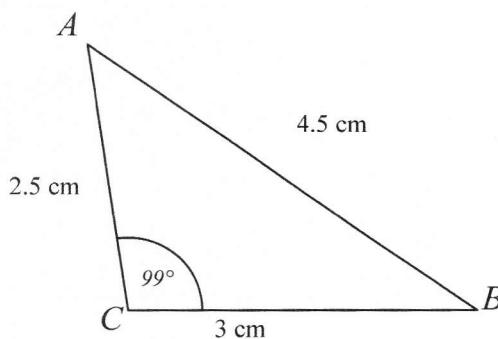
SSS Three sides of one triangle are equal to three corresponding sides of a second triangle.

SAS Two sides and an included angle of one triangle are equal to two corresponding sides and an included angle of a second triangle.

AAS Two angles and a side of one triangle are equal to two angles and a corresponding side of a second triangle.

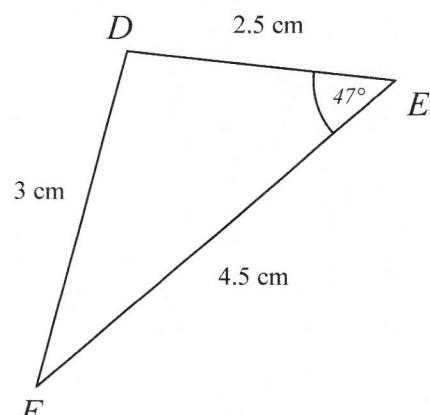
RHS Two right angled triangles have the hypotenuse equal and one other side equal in length.

14. Which of the congruence tests could be used to show that $\Delta ABC \equiv \Delta EFD$.



AAS

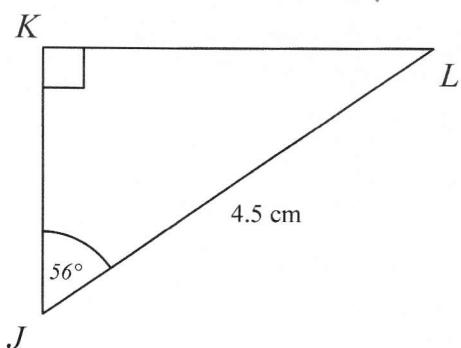
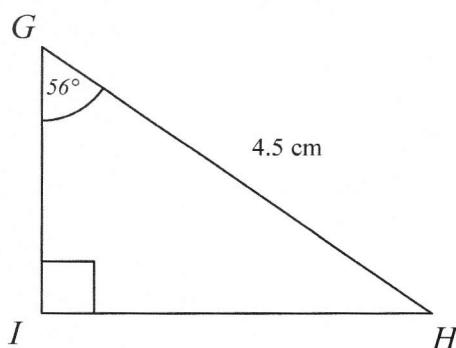
RHS



SAS

SSS

15. Which of the congruence tests could be used to show that $\Delta GHI \cong \Delta JLK$.



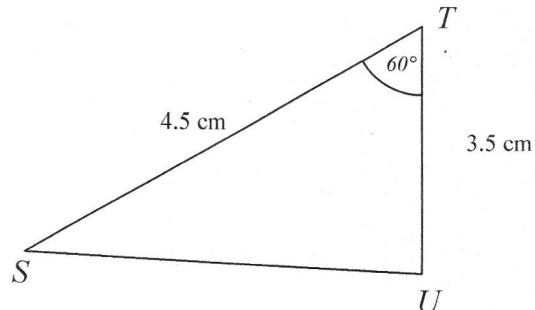
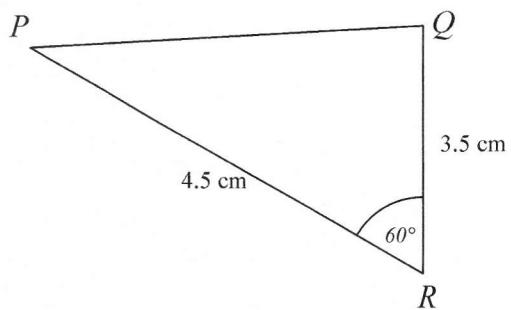
AAS

RHS

SAS

SSS

16. Which of the congruence tests could be used to show that $\Delta PQR \cong \Delta SUT$.



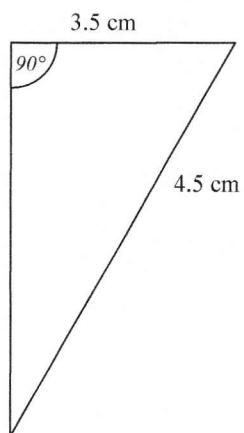
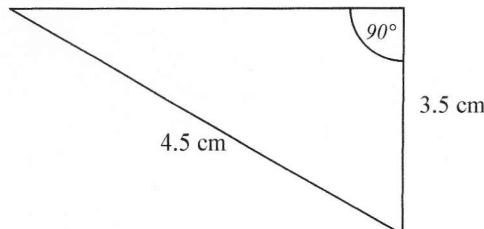
AAS

RHS

SAS

SSS

17. Which of the congruence tests could be used to show that $\Delta PQR \cong \Delta SUT$.



SCALE?



AAS

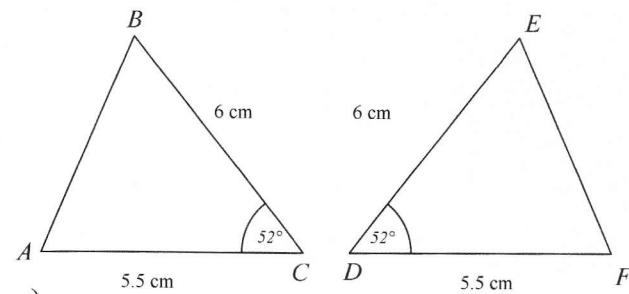
RHS

SAS

SSS

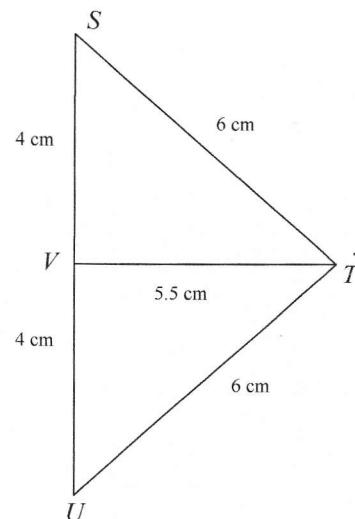
18. Complete the congruence proof below:

In $\triangle ABC$ and $\triangle FED$
 $AC = \underline{DF}$ (given)
 $\angle ACB = \angle EDF$ (given)
 $BC = \underline{DE}$ (given)
 $\therefore \triangle ABC \cong \triangle FED$ (SAS)

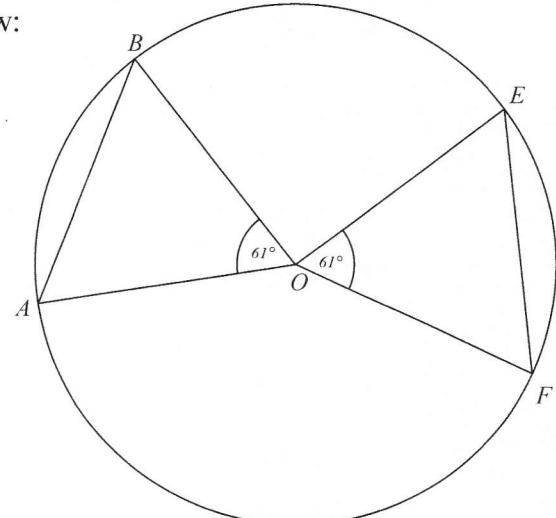


19. Complete the congruence proof below:

In $\triangle STV$ and $\triangle UTV$
 $ST = \underline{TV}$ (given)
 $SV = \underline{VU}$ (given)
 VT is common
 $\therefore \triangle STV \cong \triangle UTV$ (SSS)



20. Complete the congruence proof below:



In $\triangle ABO$ and $\triangle EFO$

$AO = \underline{OE}$ (equal radii)
 $BO = \underline{OF}$ (equal radii)
 $\angle BOA = \angle FOE$ (given).
 $\therefore \triangle ABO \cong \triangle EFO$ (SAS)