9.2

Student's Worksheet

Name: ..... *Date:* .....

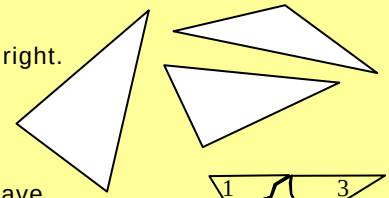
TRIANGLES

B. *The Sum of all Angles of a Triangle*

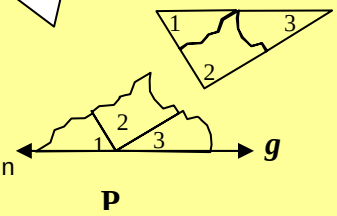
Mini - Lab

WORK IN GROUPS

Materials: Paper, pencil, protractor, ruler, and scissors.



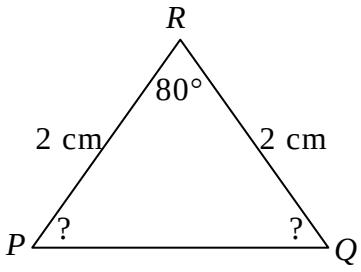
1. Draw three triangles as shown in the figure on the right.
2. Cut each triangle along the sides.
3. Share them with your classmates, so that each person gets different triangle.
4. Draw a straight line *g* as you like.
5. Mark a number on each angle of the triangle you have.



6. Cut the edges of the triangles as shown in the figure on the right.
7. Choose point *P* on line *g*. Place 3 edges of the triangle from those pieces of paper on *P*. Arrange the endpoints as in the figure on the right.
8. Compare your result with your friends's results for different triangles.
9. What can you and your friends conclude?
10. Recheck to justify your conclusion by measuring each angle of the triangles using a protractor and calculate the sum. Do it carefully.

Solution:

PROBLEM 1

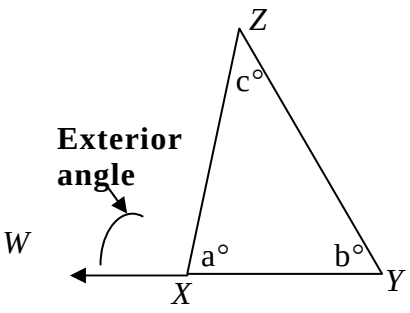


Given ΔPQR as in the figure on the left.

a. What kind of triangle is ΔPQR? Explain it.
b. What is the size of $\angle P$?
c. What is the size of $\angle Q$?
d. How can you determine the size of $\angle P$ and $\angle Q$?
e. Is $\angle P = \angle Q$? Why?

Solution:

C. *The Exterior and Interior Angles of a Triangle*



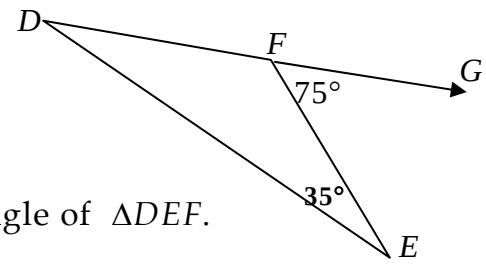
Look at ΔXYZ on the left.
The side XY is lengthened into WY.
$\angle Y$, $\angle Z$, and $\angle YXZ$ are *the interior angles* of ΔXYZ and $\angle WXZ$ is *the exterior angle* of ΔYXZ.

a. What conclusion can you draw about the relation between $\angle WXZ$ and $\angle YXZ$?
b. What is the size of $\angle WXZ$?
c. What conclusion can you draw about the relation between the size of the exterior angle ($\angle WXZ$) and two interior angles ($\angle XYZ$ and $\angle YZX$)?
d. How many exterior angle is there in the triangle?

Solution:

PROBLEM 4

Look at the figure on the right.

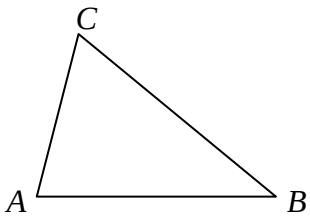


a. Name the exterior angle of ΔDEF.
b. What is the measure of the exterior angle of ΔDEF.
c. What is the measure of $\angle DFE$.
d. Measure the measure of $\angle EDF$.

Solution:

D. *The Perimeter and Area of a Triangle*

PROBLEM 5



Look at the figure below.

a. How can you calculate the perimeter of ΔABC shown in the figure on the left? Explain it.
b. What is the perimeter of ΔABC?
c. What conclusion can you draw?
d. Can you formulate the perimeter of ΔABC?

Solution :

Mini - Lab

WORK IN GROUPS

Materials: Square paper, ruler and scissors

1. Draw rectangle *ABCD* on the grid paper with the length of 12 squares and the width of 9 squares.
2. Cut the rectangle *ABCD* along the sides.
3. What is the area of rectangle *ABCD*?
4. Draw one of the diagonals of rectangle *ABCD*.
5. Cut the rectangle *ABCD* along the diagonals (step 4) into two parts.
6. What is the shape you get? Are the two shapes obtained equal?
7. Do the two shapes have the same area?
8. What is the area of each shape you get (step 7)?
9. What is the formula of each of the shapes you get?

Solution :