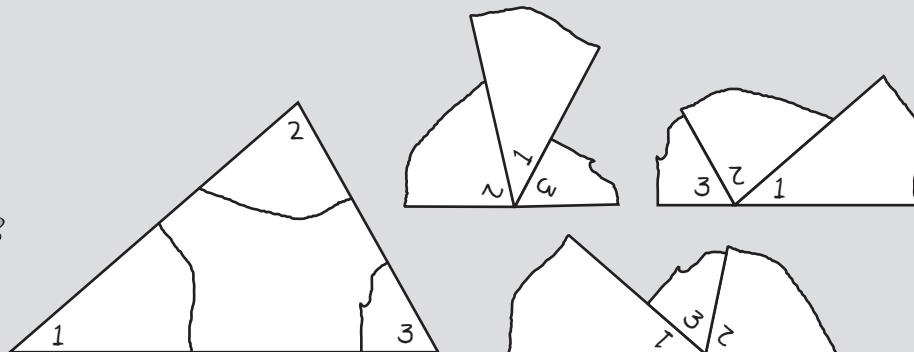SHAPES

Angles in a Triangle

Try this!

Cut a large triangle from a sheet of paper. Tear off the three corners and arrange them as shown below. Try this with several different triangles.
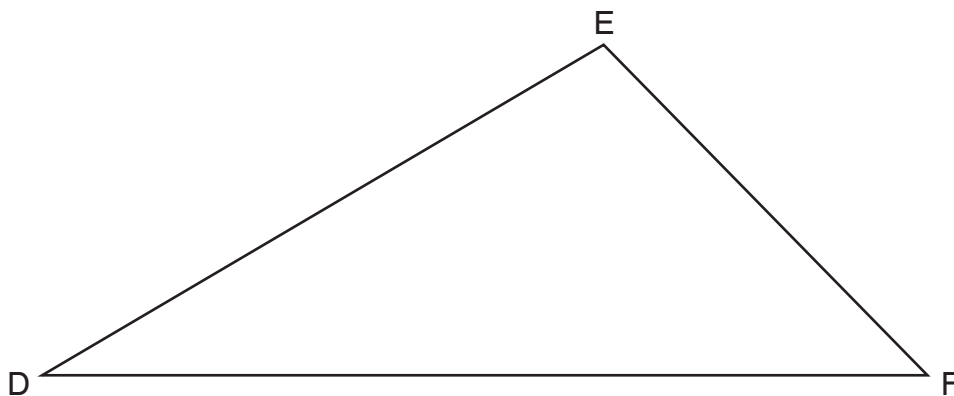
You should notice that no matter what triangle you use, the three corners can always be placed together to make a straight line!

The three corners of a triangle can always be arranged to make a straight line because **the sum of the three angles in any triangle is 180 degrees**.

PRACTICE | Use the triangle below to answer the questions that follow.

E

D   F

54. Use a protractor to find the measure of angle EDF.

54. ∠EDF = _____

55. Use a protractor to find the measure of angle DEF.
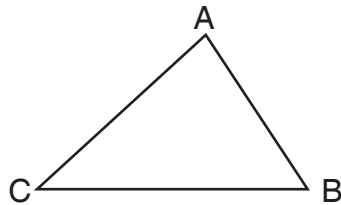
55. ∠DEF = _____

56. Find the measure of angle EFD without using a protractor.
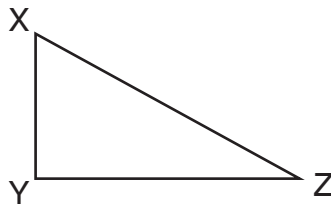
56. ∠EFD = _____

PRACTICE | Use what you know about angles and triangles to answer the questions below ***without a protractor***.

57. In triangle ABC, the measure of angle ABC is 57 degrees, and the measure of angle BCA is 43 degrees. What is the measure of angle BAC?
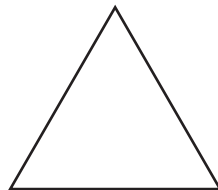
57. ∠BAC = _____

58. In right triangle XYZ, angle XYZ is the right angle. What is the sum of the measures of the other two angles in triangle XYZ?
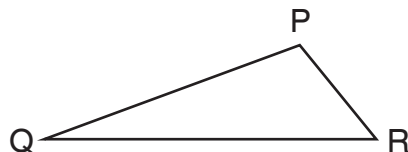
58. _____

59. Every equilateral triangle has three equal sides. The three angles of an equilateral triangle are also equal. What is the measure of each angle in an equilateral triangle?
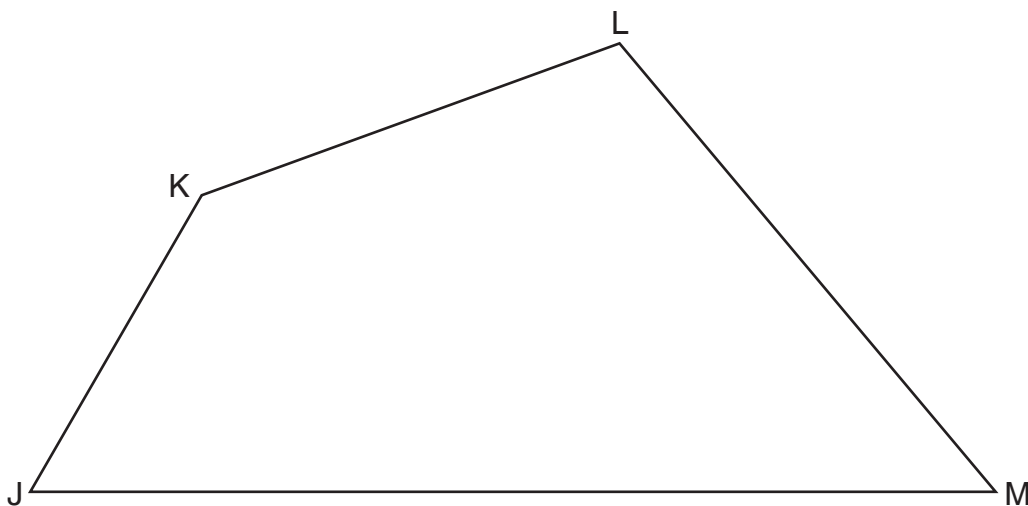
59. _____

60. In triangle PQR, angle QPR is 60° greater than angle PRQ. ★ Angle PQR is 30° less than angle PRQ. What is the measure of angle PRQ?

60. ∠PRQ = _____

PRACTICE | Use the quadrilateral below to answer the questions that follow.

61. Use a protractor to find the measure of each angle in the quadrilateral above.

61. ∠JKL = _____

∠KLM = _____

∠JML = _____

∠KJM = _____

62. What is the sum of the measures of the four angles in quadrilateral JKLM?
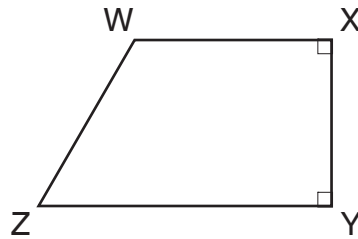
62. _____

63. Every rectangle has four right angles. Is the sum of the angle measures in a rectangle more, less, or the same as the sum of the angle measures in quadrilateral JKLM above?
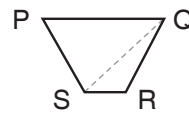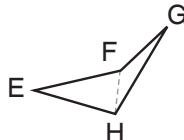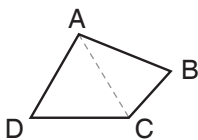
63. _____

PRACTICE | Use the quadrilateral below to answer the questions that follow. Answer the questions **without a protractor.**

64. Draw segment WY to split quadrilateral WXYZ into two triangles. The measure of angle XYW is 50°. Find the measure of angle XWY.

64. ∠XWY = _____

65. Find the measure of angle ZYW.

65. ∠ZYW = _____

66. The measure of angle WZY is 60°. Use your answer to the previous question to find the measure of angle ZWY.

66. ∠ZWY = _____

67. What is the sum of the measures of the four angles in quadrilateral WXYZ?

67. _____

68. Any quadrilateral can be split into two triangles by connecting two opposite corners with a line segment. For example,

Using what you learned on the previous pages about the sum of the angle measures in a triangle, what can you conclude about the sum of the angle measures in a quadrilateral?