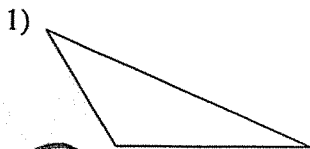


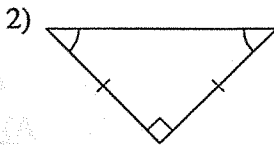
# Classifying Triangles by Sides and/or Angles

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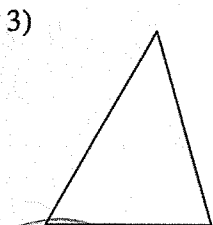
Classify each triangle by its sides. Equal sides and equal angles, if any, are indicated in each diagram.



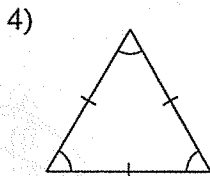
- A) scalene
- B) equilateral
- C) isosceles



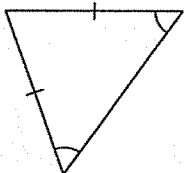
- A) equilateral
- B) isosceles
- C) scalene



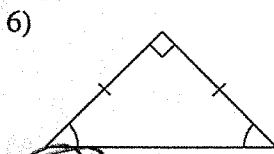
- A) scalene
- B) isosceles
- C) equilateral



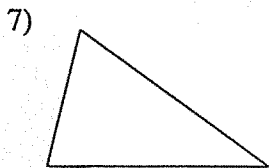
- A) scalene
- B) equilateral
- C) isosceles



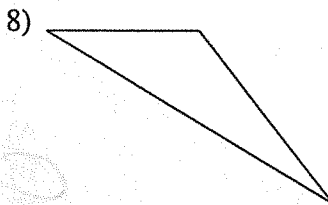
- A) equilateral
- B) isosceles
- C) scalene



- A) isosceles
- B) equilateral
- C) scalene



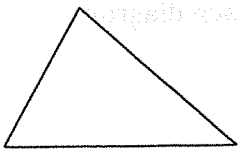
- A) scalene
- B) isosceles
- C) equilateral



- A) scalene
- B) equilateral
- C) isosceles

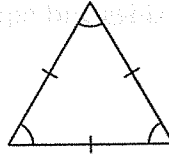
Classify each triangle by its angles and sides. Equal sides and equal angles, if any, are indicated in each diagram.

17)



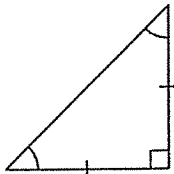
- A) right isosceles
- B) obtuse scalene
- C) acute scalene**
- D) obtuse isosceles

18)



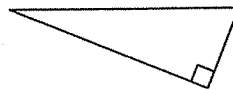
- A) obtuse scalene
- B) equilateral**
- C) obtuse isosceles
- D) acute isosceles

19)



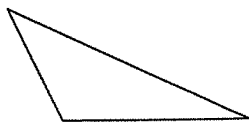
- A) acute isosceles
- B) acute scalene
- C) equilateral
- D) right isosceles**

20)



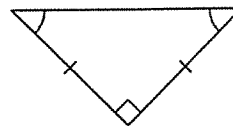
- A) obtuse scalene
- B) right scalene**
- C) acute scalene
- D) acute isosceles

21)



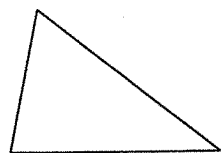
- A) obtuse isosceles
- B) obtuse scalene**
- C) right scalene
- D) equilateral

22)



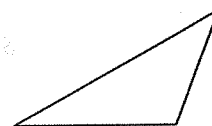
- A) equilateral
- B) obtuse scalene
- C) acute isosceles
- D) right isosceles**

23)



- A) right scalene
- B) right isosceles
- C) acute scalene**
- D) obtuse isosceles

24)

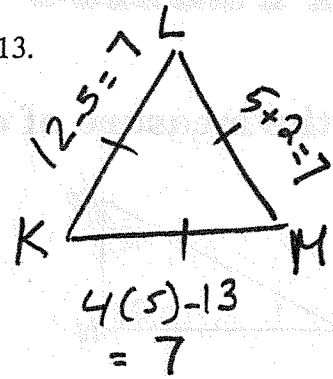


- A) right isosceles
- B) obtuse scalene**
- C) equilateral
- D) right scalene

Draw the triangle. Then, find  $x$  and the measure of each side of the triangle.

- 33) Triangle KLM is equilateral with  $KM = d + 2$ ,  $LM = 12 - d$ , and  $LK = 4d - 13$ .

$$\begin{array}{r} d+2 = 12-d \\ +d \qquad +d \\ \hline 2d+2 = 12 \\ -2 \quad -2 \\ \hline 2d = 10 \quad \boxed{d=5} \end{array}$$



- 34) Triangle ABC is equilateral with  $AB = 3x - 2$ ,  $BC = 2x + 4$ , and  $CA = x + 10$ .

$$\begin{array}{r} 3x-2 = x+10 \\ -x \quad -x \\ \hline 2x-2 = 10 \\ +2 \quad +2 \\ \hline 2x = 12 \\ \frac{2x}{2} = \frac{12}{2} \\ \boxed{x=6} \end{array}$$

$$AB = 3(6) - 2 = 16$$

$$BC = 2(6) + 4 = 16$$

$$CA = 16.$$

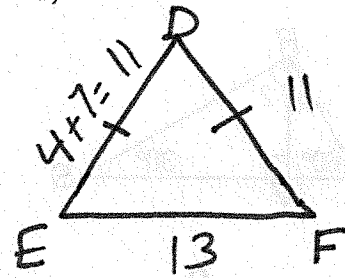
- 35) Triangle DEF is isosceles, angle D is the vertex angle,  $DE = x + 7$ ,  $DF = 3x - 1$ , and  $EF = 2x + 5$ .

DE = DF isosceles

$$\begin{array}{r} x+7 = 3x-1 \\ -x \quad -x \\ \hline 7 = 2x-1 \\ +1 \quad +1 \\ \hline 2x = 8 \quad \boxed{x=4} \end{array}$$

$$DE = DF = 11$$

$$\begin{aligned} EF &= 2(4) + 5 \\ &= 8 + 5 \\ &= 13 \end{aligned}$$



- 36) Triangle FGH is equilateral with  $FG = x + 5$ ,  $GH = 3x - 9$ , and  $FH = 2x - 2$ .

$$\begin{array}{r} x+5 = 2x-2 \\ -x \quad -x \\ \hline 5 = x-2 \\ +2 \quad +2 \\ \hline \boxed{x=7} \end{array}$$

$$FG = 7 + 5 = 12$$

$$GH = 12$$

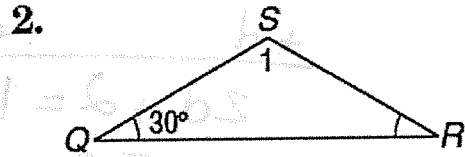
$$FH = 12$$

# 4-2 Practice

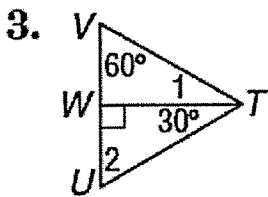
Find the measure of each numbered angle.



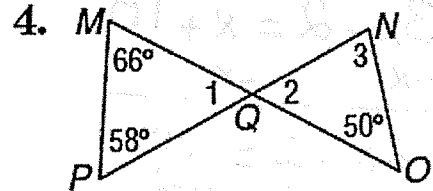
$$m\angle 1 = 180 - 62 - 90 = 28^\circ$$



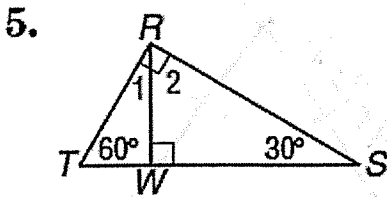
$$m\angle 1 = 180 - 60 - 30 = 120^\circ$$



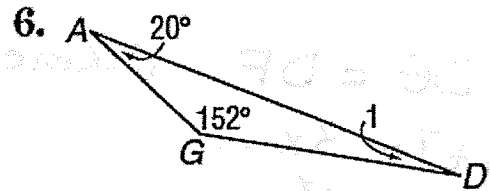
$$m\angle 1 = 30^\circ, m\angle 2 = 60^\circ$$



$$m\angle 1 = 56^\circ, m\angle 2 = 56^\circ, m\angle 3 = 74^\circ$$

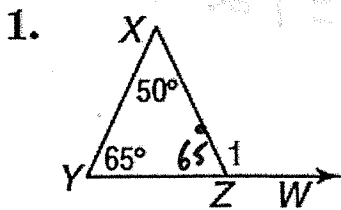


$$m\angle 1 = 30^\circ, m\angle 2 = 60^\circ$$

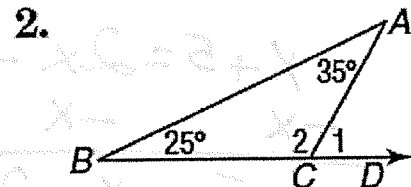


$$m\angle 1 = 8^\circ$$

Find the measure of each numbered angle.

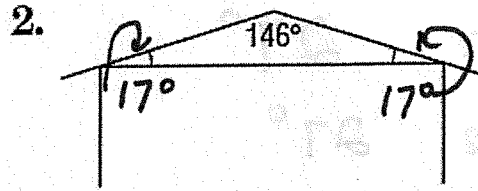


$$m\angle 1 = 115^\circ$$



$$m\angle 1 = 60^\circ, m\angle 2 = 120^\circ$$

Find the missing angle measures.

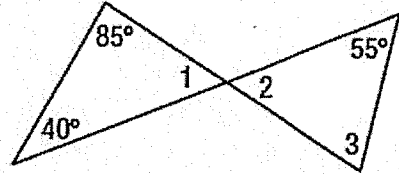


Find the measure of each angle.

3.  $m\angle 1 = 55^\circ$

4.  $m\angle 2 = 55^\circ$

5.  $m\angle 3 = 70^\circ$

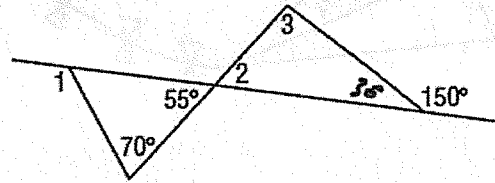


Find the measure of each angle.

6.  $m\angle 1 = 125^\circ$

7.  $m\angle 2 = 55^\circ$

8.  $m\angle 3 = 95^\circ$



Find the measure of each angle.

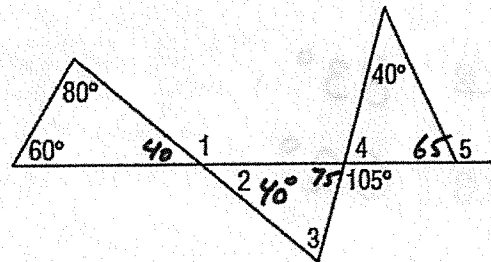
9.  $m\angle 1 = 140^\circ$

10.  $m\angle 2 = 40^\circ$

11.  $m\angle 3 = 65^\circ$

12.  $m\angle 4 = 75^\circ$

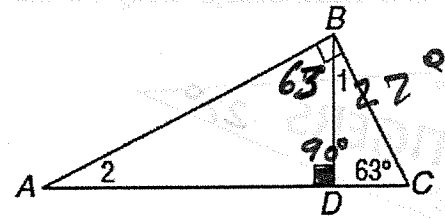
13.  $m\angle 5 = 115^\circ$



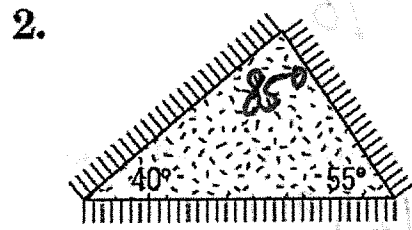
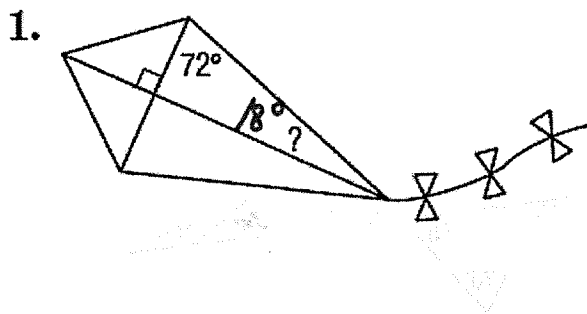
Find the measure of each angle.

14.  $m\angle 1 = 27^\circ$

15.  $m\angle 2 = 27^\circ$



Find the missing angle measures.



Find the measure of each angle.

3.  $m\angle 1 = 97^\circ$

4.  $m\angle 2 = 83^\circ$

5.  $m\angle 3 = 62^\circ$

