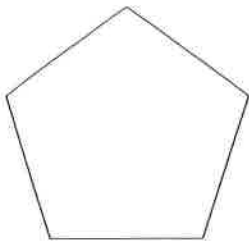


Practice 3.5-3.6 Angles in Polygons

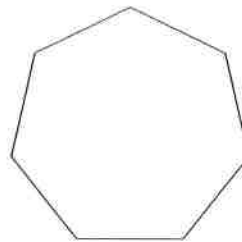
Find the interior angle sum for each polygon. Round your answer to the nearest tenth if necessary.

1)



540°

2)



900°

3) regular 13-gon

1980°

4) regular decagon

1440°

5) regular 15-gon

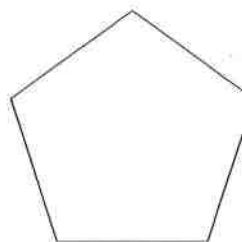
2340°

Find the exterior angle sum for each polygon. Round your answer to the nearest tenth if necessary.

6) regular 13-gon

360°

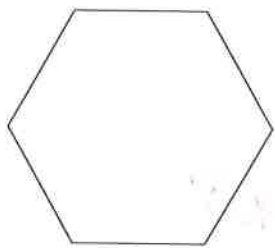
7)



360°

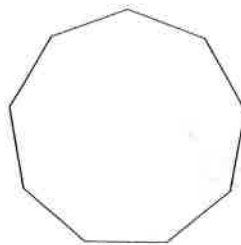
Find the measure of one interior angle in each polygon. Round your answer to the nearest tenth if necessary.

8)



120°

9)



140°

10) regular 19-gon

161.1°

11) regular 22-gon

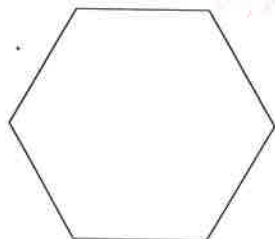
163.6°

12) regular 17-gon

158.8°

Find the measure of one exterior angle in each polygon. Round your answer to the nearest tenth if necessary.

13)



60°

14) regular 14-gon

25.7°

15) regular 13-gon

27.7°

Find the requested measure(s).

16) Find the sum of the interior angles of a 26 sided polygon.

4320°

$$\underline{180(26-2)}$$

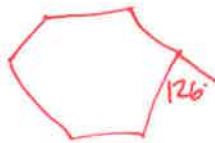
17) Find the measure of each interior angle of a regular polygon with 12 sides.

150°

$$\frac{180(12-2)}{12} =$$

18) What is the interior angle measure at an exterior angle of 126°?

54°



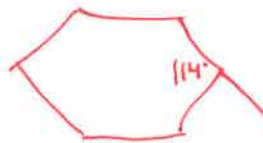
19) Find the measure of each interior angle of a regular polygon with 28 sides.

167.14°

$$\frac{180(28-2)}{28} =$$

20) Find the measure of the exterior angle at an interior angle of 114°.

66°



21) Find the sum of the exterior angles of a polygon with 14 sides.

360°

22) Find the measure of each a) interior and b) exterior of a regular nonagon.

$$a) \frac{180(9-2)}{9} = 140°$$

$$b) \frac{360}{9} = 40°$$

adds to 180°

Find the number of sides.

23) How many sides does a regular polygon have if each interior angle is 144° ?

$$\frac{180(n-2)}{n} = \frac{144}{1}$$

Cross multiply

$$\begin{aligned} 180(n-2) &= 144n \\ 180n - 360 &= 144n \\ -180n &\quad -180n \\ \hline -360 &= -36n \end{aligned}$$

$$\begin{aligned} -360 &= -36n \\ \frac{-360}{-36} &= \frac{-36n}{-36} \\ n &= 10 \\ &\text{(decagon)} \end{aligned}$$

24) Find the number of sides of a polygon if the sum of the interior angles is 2880° .

$$180(n-2) = 2880$$

$$\begin{aligned} 180n - 360 &= 2880 \\ +360 &+360 \\ \hline 180n &= 3240 \\ \frac{180n}{180} &= \frac{3240}{180} \\ n &= 18 \end{aligned}$$

25) How many sides does a regular polygon have if each exterior angle is 18° ?

$$\frac{360}{n} = \frac{18}{1}$$

$$\frac{18n}{18} = \frac{360}{18}$$

$$n = 20$$

26) How many sides does a regular polygon have if each exterior angle is 15° ?

$$\frac{360}{n} = \frac{15}{1}$$

$$\frac{360}{15} = \frac{15n}{15}$$

$$n = 24$$