Pg. 124 (4-27)

④ 4 sides

$S = (n-2) \cdot 180$

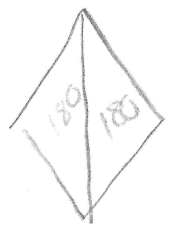$S = (4-2) \cdot 180$

$= 2 \cdot 180$

$= 360°$

* two triangles

180 180

⑨ 9 sides

$S = (n-2) \cdot 180$

$= (9-2) \cdot 180$

$= 7 \cdot 180$

$= 1,260°$

⑤ 9 sides

$S = (n-2) \cdot 180$

$S = (9-2) \cdot 180$

$= 7 \cdot 180$

$= 1,260°$

⑥ 7 sides

$S = (n-2) \cdot 180$

$= (7-2) \cdot 180$

$= 5 \cdot 180$

$= 900°$

⑩ The formula is

$S = (n-2) \cdot 180$

not $n \cdot 180$.

⑪ 5 sides

$S = (n-2) \cdot 180$

$= (5-2) \cdot 180$

$= 3 \cdot 180$

$= 540°$

```
  2 1
 120
 105
 1 50
  65
  95
 535°
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* no the sum does not equal 540°

⑦ 4 sides

$S = (n-2) \cdot 180$

$= (4-2) \cdot 180$

$= 2 \cdot 180$

$= 360°$

⑫ $S = (4-2) \cdot 180 = 360°$

$137 + 155 + 25 + x = 360°$

$317 + x = 360°$

$-317 \qquad -317$

$x = 43°$

Double check

$137 + 155 + 25 + 43 = 360°$

⑧ 8 sides

$S = (n-2) \cdot 180$

$= (8-2) \cdot 180$

$= 6 \cdot 180$

$= 1,080°$

(13) 6 sides

$(6-2) \cdot 180 = 720°$

$4x + 90 + 90$

$4x + 180 = 720$

$ -180 \quad -180$

$\dfrac{4x}{4} = \dfrac{540}{4}$

$\boxed{x = 135°}$

(14) 6 sides, so sum $= 720°$

$45 + 135 + x + 135 + 45 + 3x$

$360° + 4x = 720°$

$-360° \qquad -360°$

$\dfrac{4x}{4} = \dfrac{360°}{4}$

$\boxed{x = 90°}$

$\boxed{3x = 270°}$

(15) $S = (n-2) \cdot 180$

$1260 = (n-2) \cdot 180$

$1260 = 180n - 360$

$+360 \qquad\qquad +360$

$\dfrac{1620}{180} = \dfrac{180n}{180}$

$n = 9 \text{ sides}$

$\dfrac{1260°}{9} = \boxed{140°}$

*write an equation to find out how many sides

(16) Triangle, so sum $= 180$

$\dfrac{180°}{3 \text{ sides}} = 60°$

(17) 9 Sides $(9-2) \cdot 180 = 7 \cdot 180$

$\phantom{9 \text{ Sides} (9-2) \cdot 180} = 1,260$

$\dfrac{1,260°}{9} = \boxed{140°}$

(18) 12 sides

$(12-2) \cdot 180$

$10 \cdot 180 = 1800°$

$\dfrac{1800°}{12 \text{ sides}} = 150°$

(19) There are 20 sides, so once you get the sum of all interior angles, 3240°, you must divide by the total sides, 20, not 18;

(20) a) $S = (n-2) \cdot 180$
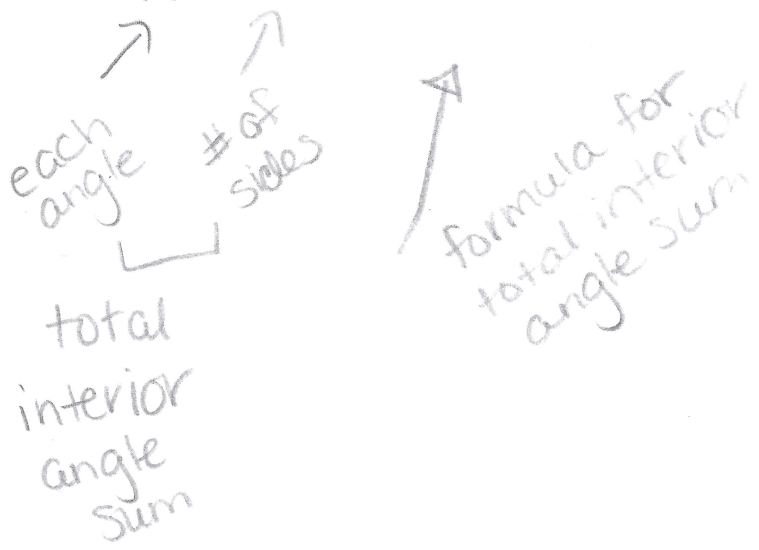
$S = (5-2) \cdot 180$

$= 3 \cdot 180$

$= 540°$

$\dfrac{540°}{5 \text{ sides}} = 108°$

b) to prevent people from unscrewing them

(21) write an equation

$$165n = (n-2) \cdot 180$$

↗ each angle

↗ # of sides

↗ formula for total interior angle sum

total interior angle sum

$$165n = 180n - 360$$
$$-180n \qquad -180n$$
$$\frac{-15n}{-15} = \frac{-360}{-15}$$

(n = 24 sides)

(22) Total ext angles = 360°

$$140 + 110 + x = 360$$
$$250 + x = 360$$
(x = 110°)

(23) $$107 + 85 + 93 + w = 360$$
$$285 + w = 360$$
$$-285 \qquad -285$$
(w = 75°)

(24) $$z + 45 + 55 + 78 + 74 + z = 360°$$

$$2z + 252 = 360$$
$$-252 \quad -252$$
$$\frac{2z}{2} = \frac{108}{2}$$

($z = 54°$
$z + 45 = 99°$)

(25) hexagon has 6 sides, so it has 6 exterior angles.
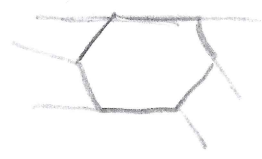
$$\frac{360°}{6 \text{ angles}} = 60°$$

(26) $$n + n + 90 + n + n + 90 = 360°$$
$$4n + 180 = 360$$
$$-180 \quad -180$$
$$4n = 180$$
(n = 45°)

(27) Since it is a triangle and all interior angles add up to 180° and each one is equal in the diagram, each int is 60°. Each exterior is supp to the int, so each angle is 120°