I § 10.1: p. 538:

A P. 539: Angles

\[ R_1: \text{Ray 1} \]
\[ R_2: \text{Ray 2} \]

\[ \text{Common Initial Point} \]

B Pizza in 8 equal slices. How many degrees at the vertex of each slice?

\[
\frac{360^\circ}{8} = 45^\circ
\]

Ans 45°

C Clock: 12 numbers

\[
\begin{array}{c|c}
30 & \hline 12 & 360^\circ \\
\end{array}
\]

How many degrees from 1 o'clock to 6 o'clock?

Ans (5 numbers) \[ 5 \times 30^\circ = 150^\circ \]

D Complements of Angles (p. 541)

Two angles are called complementary if the sum of their measures is 90°.

\[ \triangle ABC \]
\[ m \angle ABC = 40^\circ \]

If \( \angle ABC \) and \( \angle CBD \) are complementary, then

\[ m \angle ABC + m \angle CBD = 90^\circ \]

\[ \therefore \text{Since } m \angle ABC = 40^\circ \]
\[ m \angle CBD = 50^\circ \]
[E] Supplementary (p. 541)

\[ m \angle XYZ + m \angle ZYW = 180^\circ \] The angles are supplementary.

[F] Vertical Angles.

\[ \angle 1 \text{ and } \angle 2 \text{ are supplementary} \]
\[ \angle 2 \text{ } \angle 3 \text{ } \angle 3 \text{ } \angle 4 \text{ } \angle 4 \text{ } \angle 1 \text{ } \]

\[ \text{NEW} \]
\[ \angle 1 \text{ and } \angle 3 \text{ are vertical angles, and vertical angles have equal measure!} \]

Example

We started with just this angle \( \frac{180^\circ - 52^\circ}{128^\circ} \), we figured out the other.

This was the only "math" we had to do.
4. Angles Generated by Transcending Parallel Lines. (p. 542)

1. Alternate Interior Angles.
   \[ \angle 4 \text{ and } \angle 6 \] form a pair of Alt. Int. Angles.
   \[ \angle 5 \text{ and } \angle 3 \]

2. Corresponding angles
   \[ \angle 1 \text{ and } \angle 5 \] are corresponding angles.

3. Alt. Interior Angles have Equal Measure.

4. Example
   We were "given this and we "found" the remaining 7 angles.
   \[ l_1 \parallel l_2 \]
   \[ 110^\circ \]
   \[ 70^\circ \]
   \[ 110^\circ \]
   \[ 70^\circ \]
   \[ 110^\circ \]
   \[ 70^\circ \]
   \[ 180^\circ - 110^\circ = 70^\circ \]
   our calculation
§ 10.1: p. 545: # 33: Find the measure of each angle.

\[(2x + 50°) + (4x + 10°) = 90°\]
\[2x + 50° + 4x + 10° = 90°\]
\[6x + 60° = 90°\]
\[-60° -60°\]
\[6x = 30° \frac{6}{6}\]
\[x = 5°\]
\[\therefore 2x + 50° = 2(5°) + 50° = 60°\]
\[\text{and } m\angle 1 = 60°\]
\[4x + 10° = 4(5°) + 10° = 30°\]

Answer

\[
\begin{aligned}
m\angle 1 &= 60° \\
\text{and } m\angle 2 &= 30°
\end{aligned}
\]

§ 10.1: p. 544: # 29: Find missing measures:

\[l_1 \parallel l_2\]

\[
\begin{aligned}
m\angle 1 &= 68° \\
m\angle 2 &= 68° \\
m\angle 3 &= 112° \\
m\angle 4 &= 112° \\
m\angle 5 &= 68° \\
m\angle 6 &= 68° \\
m\angle 7 &= 112°
\end{aligned}
\]

\[
\begin{aligned}
\frac{180°}{112°} \\
\frac{-112°}{68°}
\end{aligned}
\]

§ 10.2: Triangles (p. 546)

A] The sum of the measures of the 3 interior angles in any triangle is 180°.
1. $\triangle ABC$ is "trapped" between the parallel lines $l_1$ and $l_2$.

2. The interior angles of $\triangle ABC$ have been numbered 1, 2, 3.

3. Angles 4 and 5 have been listed in the figure.

4. Note $\angle 1$ and $\angle 4$ form an Alternate Interior pair. $m\angle 1 = m\angle 4$, which I have indicated on the sketch above.

5. Similarly $\angle 2$ and $\angle 5$ form an Alt. Int. pair, so $m\angle 2 = m\angle 5$

6. $\therefore$ By looking at the completed drawing above, you can see that $m\angle 1 + m\angle 2 + m\angle 3 = m\angle 2 + m\angle 4 + m\angle 5$.

7. BUT, obviously, $m\angle 4 + m\angle 3 + m\angle 5 = 180^\circ$.

8. $\therefore m\angle 1 + m\angle 2 + m\angle 3 = 180^\circ$ for ANY triangle!

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Have a Great Labor Day