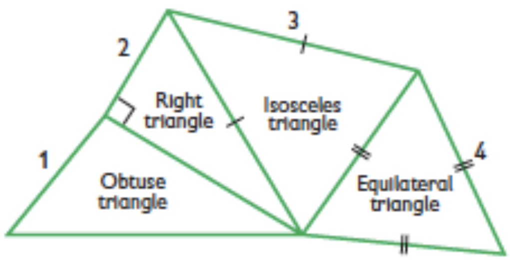
7.G.5 4. The measure of ∠3 is 127°

7.G.5 5. (C) 145°

7.G.2 2.



7.G.5 2. (C) 40° and 100°

(F) 70° and 70°

7.G.2 4. (C) Two of the sides must be the same length.

7.G.2 5. (B) All three angles are the same measure.

7.G.2 6. (D) The sum of the lengths of the two shorter sides must be greater than the length of the third side.

7.G.2 7. (A) 5 cm

(B) 13 cm

(C) 27 cm

7.G.5 8. No matter how high the bridge tilts up, ∠*EDF* will measure 90°. Without more information, you cannot determine the exact measure of ∠*DEF*.

You know that the angle measures of a triangle must add up to 180°. So, the sum of the measures of ∠*DEF* and ∠*DFE* equals 90° because 180 – 90 = 90°.

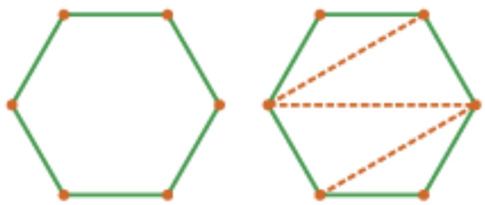
Since the sum of the measures of ∠*DEF* and ∠*DFE* is 90°, the measure of ∠*DEF* is greater than 0° and less than 90°.

7.G.2 9. Maya misses the point that the angle measures need to be taken into account. Without measuring the angle measures, her construction is unlikely to result in a congruent triangle.

7.G.5 **1.** (B) 900°

7.G.5 **2.** (C) Octagon

7.G.2
7.G.5 **6.** Any hexagon can be divided into four triangles, as shown in this diagram.

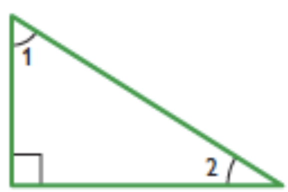


The measures of all of the angles in each of the four triangles are included in the total measure of the interior angles of the hexagon, so you can just add their measures.

$180° + 180° + 180° + 180° = 720°$

7.G.5 **7.** $\angle ABC = 154.29°$

7.G.5 **3.** (B)



7.G.5 **8.** $\angle ACB = 64°$

7.G.5 **9.** $\angle ACB = 106°$

7.G.5 **10.** Since ΔABC is isosceles, it has two congruent angles, so ⊠1 also measures 75°.

The last angle in ΔABC must measure 30° because $75° + 75° + 30° = 180°$.
This 30° angle and the measure of $\angle 3$ total 45°, so $\angle 3$ measures 15°.

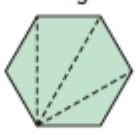
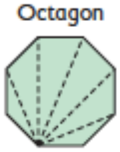
$45° – 30° = 15°$

$\angle 2$ also measures 15° since ΔBCD is isosceles.

This leaves 150° for the measure of $\angle 4$. $15° + 15° + 150° = 180°$.

7.G.2
7.G.5

4.

Shape	Number of Sides	Number of Triangles	Angle Sum–Interior Angles	Each Interior Angle Measure (if regular polygon)	Angle Sum–Exterior Angles	Each Exterior Angle Measure (if regular polygon)
Triangle 	3	1	180°	60°	360°	120°
Quadrilateral 	4	2	360°	90°	360°	90°
Pentagon 	5	3	540°	108°	360°	72°
Hexagon 	6	4	720°	120°	360°	60°
Octagon 	8	6	1,080°	135°	360°	45°
Any Polygon	n	$n-2$	$(n-2)180°$	$(n-2)\frac{180°}{n}$ or 180° – exterior angle measure	360°	$\frac{360°}{n}$ or 180° – interior angle measure

7.G.2
7.G.5

3. Here is one example.