1. How do we know the sum of the **interior** angles of a triangle is **180°**? *Let’s find out*…

a) **First we’ll set the conditions for this analysis**.

i) We will assume that one full rotation is **360°**

ii) In the *equilateral* triangle ABC to the right, each of the sides has been extended to a remote point.

iii) Elsa starts at vertex A, and faces east.

iv) Anna skates *clockwise* around the triangle before returning to her starting position.

b) Let’s answer these questions after Anna skates the triangle ABC **once**.

i) What is the total degree measure of Anna’s turns? \_\_\_\_\_\_\_\_\_

ii) How many turns does Anna make? \_\_\_\_\_\_\_\_\_

iii) Are all these turns of equal measure? \_\_\_\_\_\_\_\_\_

iv) What is the degree measure of each of the angles marked in red? \_\_\_\_\_\_\_\_\_

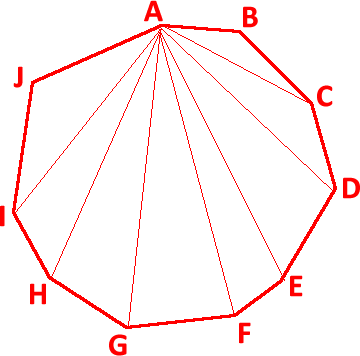
v) What is the degree measure of ∠ABC? \_\_\_\_\_\_\_\_\_

vi) Are each of the interior angles of equal measure? \_\_\_\_\_\_\_\_\_

vii) What is the total of the three interior degree measures? \_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| 2. What is the **total** measure of the **interior** angles of a **square**? \_\_\_\_\_\_\_\_  Square.png | 3. What is the **total** measure of the **interior** angles of a **pentagon**? \_\_\_\_\_\_\_\_  Pentagon.png |

|  |  |
| --- | --- |
| 4. What is the **total** measure of the **interior** angles of an **hexagon**? \_\_\_\_\_\_\_\_  Hexagon.png | 5. What is the **total** measure of the **interior** angles of a **octagon**? \_\_\_\_\_\_\_\_  Octagon.png |



6. A **10**-sided *irregular* polygon (**decagon**) appears to the right.

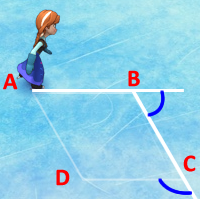
Starting from vertex A, we can construct **8** interior **triangles** by connecting A to *non-neighbouring* vertices.

a) What is the sum of the interior angles of the decagon?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b) Imagine we had a polygon with ***n*** sides. How many interior triangles could we draw?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c) What is the total interior degree measure of polygon with ***n*** sides?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



7. In our *Hour of Code’s* **Challenge 10**, Anna is required to skate a *parallelogram*.

a) Use your reasoning skills; identify the measure of the exterior angle at B.

b) Use your reasoning skills; identify the measure of the exterior angle at C.

c) What do you think the code would be to successfully skate the parallelogram?