



$ax + by = c$
 $dx + ey = f$



Counting Warm Up - Geometrical Shapes 1 (Project image on screen)

What are we counting: Shapes based on the description given. We decide what fits the description. Then count like things.

How are we counting: One by one or in groups/clusters.

Primary level counting warm up questions:
(Comments in brackets are optional depending on ability range of students)

	Questions to ask	Answers and things to note
1	How many green things?	5 small green triangles
2	How many red things?	2 (they are quadrilaterals, more specifically trapezoids)
3	How many yellow things?	2 (They are hexagons, six sided polygons)
4	How many triangles?	7 a mix of 5 green and 2 orange ones
5	How many things with 4 sides?	8 (2 squares, 1 rectangle, 2 trapezoids, 3 rhombuses)
6	How many things altogether?	17 Have students come up and share how they get to 17. After the first student ask, is there another way? After second student, another way? By ones. 5+5+5+2. 10+7, etc. Objects are slightly clustered in 2s and 3s, which you want them to “see” as 5s. (We’re not trying to be faster, we’re trying to see structure. Have students come up and trace circle groups of 2, 3, and 5)

Intermediate & up level counting warm up questions:
(Comments in brackets are optional depending on ability range of students)

	Questions to ask	Answers and things to note
1	How many triangles? Are all the triangles the same? How are they similar? How are they different?	7 triangles in total Generically all are polygons, More specifically all are triangles because they have 3 sides More specifically all are equilateral triangles all sides and angles are equal. 5 small green ones, two larger orange ones
2	How many quadrilaterals?	Any closed object with 4 straight sides. 8 in total
3	How many things altogether?	17 Have students come up and share how they get to 17. After the first student ask, is there another way? After second student, another way? By ones. 5+5+5+2. 10+7, etc. Objects are slightly clustered in 2s and 3s, which you want them to “see” as 5s. (We’re not trying to be faster, we’re trying to see structure. Have students come up and trace circle groups of 2, 3, and 5)
4	How many things with equal sides? (Equilateral shapes)	14 Count one by one the objects with equal sides. Ask if anyone can find a “shorter way” to figure out how many? Look and identify how many DO NOT have equal sides and subtract that from 17.
5	How many parallelograms?	6. Any quadrilateral where the opposites sides are parallel. 2 squares, 1 rectangle, 3 rhombuses.
6	Which shapes are most unlike all of the others and how many are there?	2 trapezoids. Sides are different lengths (like rectangles) but the angles are not alike. Rhombus angles are not alike but the sides are the same.
7	How many rectangles?	There will be debate about whether it should be 1 or 3. Definition of a rectangle is that it must have opposite sides parallel and equal in length. The square is a special case of a rectangle where the opposing facing sides also equal each other, so technically the answer is 3. A more common understanding is there is 1 rectangle.
8	How many properties are the same between the dark brown and blue shapes and what are their names?	1. All are quadrilaterals 2. All 4 sides are equal 3. Opposite sides are parallel 4. Opposite angles are equal Blue are rhombuses. Dark brown are squares

More challenging “counting” questions to consider.
How many different squares can there be? Infinite
How many different rhombuses can there be? Infinite
Are there more squares or more rhombuses? More rhombuses because all squares are a type of rhombus. (Like all German Shepherds are dogs, but not all dogs are German Shepherds.)