

Plotting an equal angle:

3 Plot $\angle QRP$ that is equal to the given $\angle AOB$:

Plotting $\angle QRP$ that is equal to the given $\angle AOB$

// Plotting auxiliary equal circles

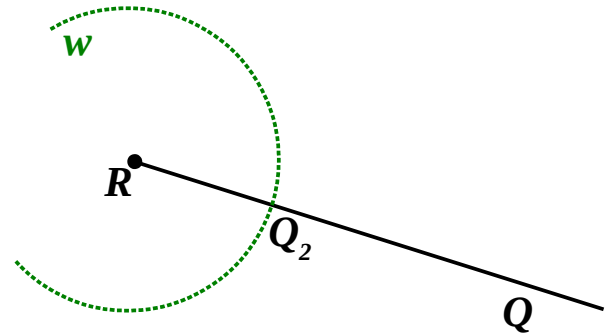
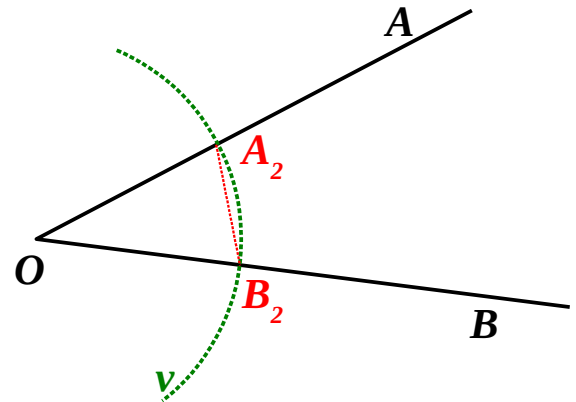
1. Plot $v = \text{Circ}(O, x)$
2. Plot $w = \text{Circ}(R, x)$

// Finding connecting arc

3. Find $A_2 = v \cap [OA]$
4. Find $B_2 = v \cap [OB]$

// Plotting an equal arc

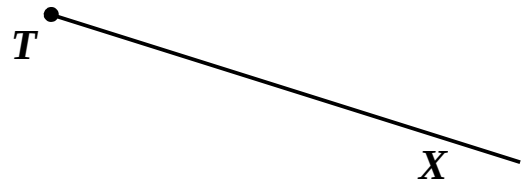
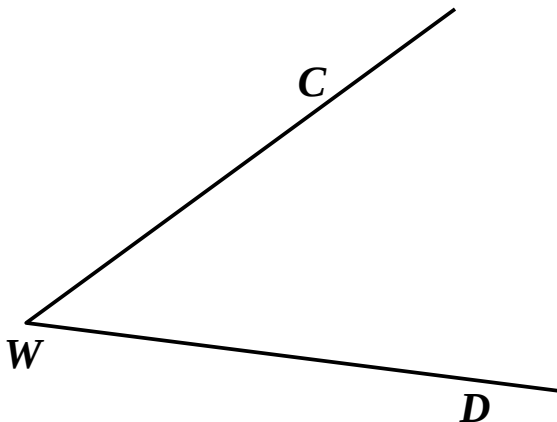
5. Plot $q = \text{Circ}(Q_1, |A_2B_2|)$
6. Find $P \in w \cap q$

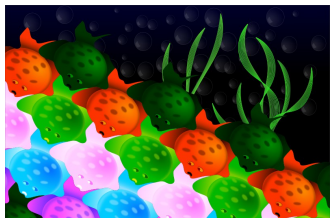


Equal angles cut equal arcs from equal circles with centers at the vertexes of these angles

Equal arcs are connected by equals chords

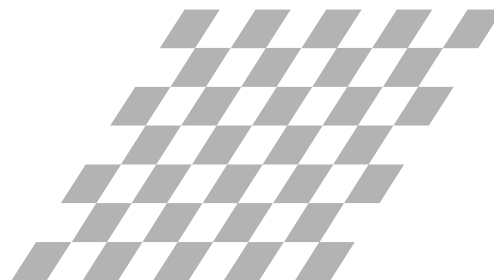
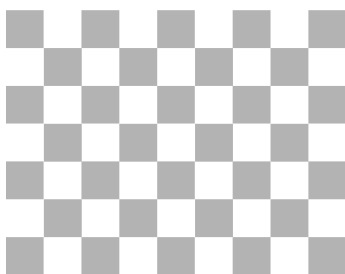
4 Plot $\angle XTZ = \angle CWD$



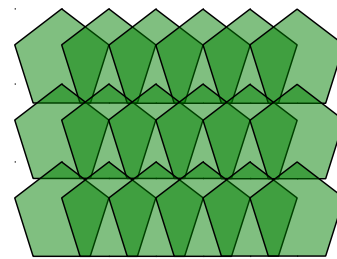
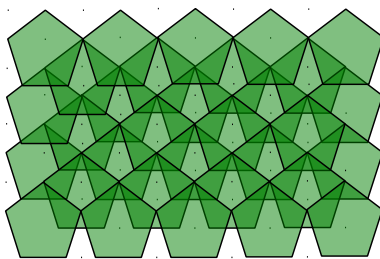
Tessellations:

A coverage of a plane by identical shapes without overlaps is called a tessellation.

For example, a plane may be paved by squares or any parallelograms.

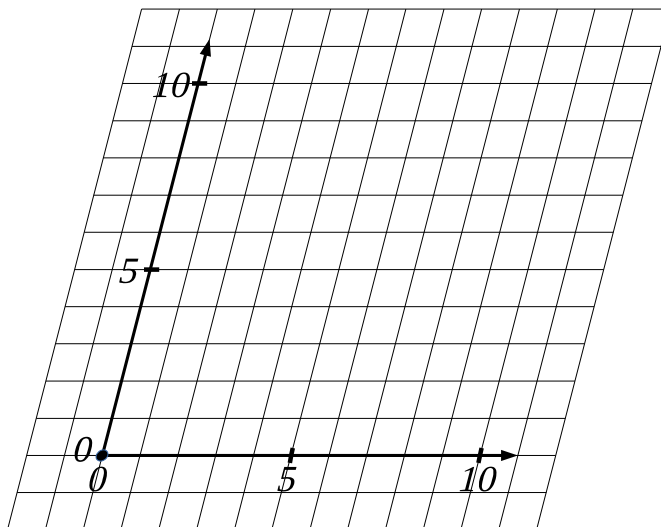
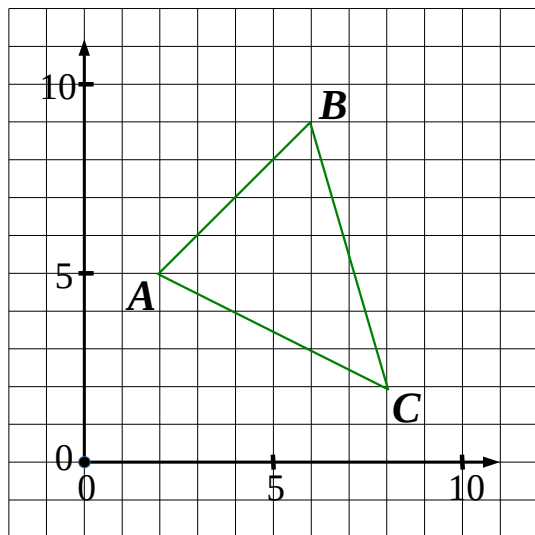


These tessellations look like they are made of pentagons; but these pentagons overlap. Which elements are actually used to make these tessellations?

**Coordinates are tessellations.**

Redraw $\triangle ABC$ in the “tilted” coordinates made of parallelograms:

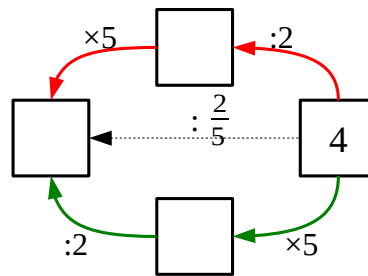
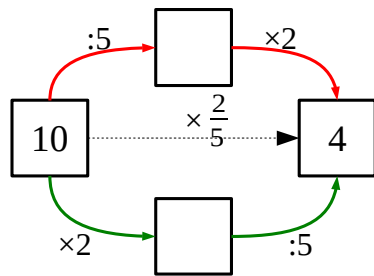
The $\frac{1}{2}$ cm squares in your notebook are tessellations



Dividing by a random fraction $\frac{m}{n}$.

By definition dividing S by a means finding such b that:

$$S : a \stackrel{\text{def}}{=} b \iff b \times a = S$$

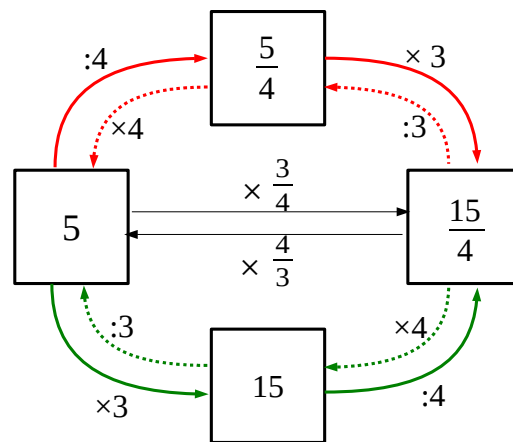
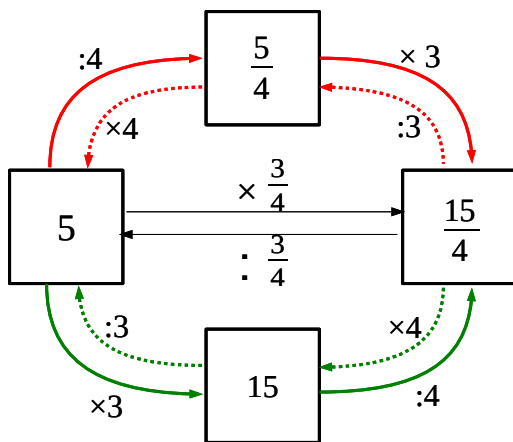


$$10 \times \frac{2}{5} = 10 : \square \times \square = 4$$

$$10 \times \frac{2}{5} = 10 \times \square : \square = 4$$

$$\text{Therefore: } 4 : \frac{2}{5} \stackrel{\text{def}}{=} 10$$

In order to find the quotient we need to undo the operations performed upon multiplication by a fraction!



Dividing a number by a fraction $\frac{m}{n}$ is equivalent to multiplying this number by the inverse fraction $\frac{n}{m}$.

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Calculate:

$$3 : \frac{2}{3} = 3 \times \frac{\square}{\square} =$$

$$4 : \frac{2}{5} = 4 \times \frac{\square}{\square} =$$

$$5 : \frac{3}{4} = 5 \times \frac{\square}{\square} =$$

$$3 : \frac{1}{3} = 3 \times \frac{\square}{\square} =$$

$$7 : \frac{3}{5} = 7 \times \frac{\square}{\square} =$$

$$4 : \frac{3}{4} = 5 \times \frac{\square}{\square} =$$

Equivalent fractions.

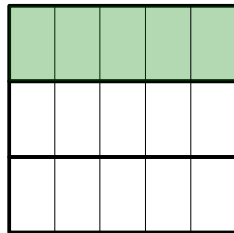
Any fraction $\frac{m}{n}$ may be expressed with a multiple denominator

and a corresponding factor: $\frac{m}{n} = \frac{2 \times m}{2 \times n} = \frac{3 \times m}{3 \times n} = \frac{k \times m}{k \times n}$

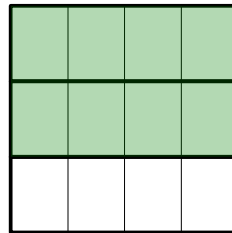
Similarly,
certain
fractions
may be
simplified

$$\frac{k \times m}{k \times n} = \frac{m}{n}$$

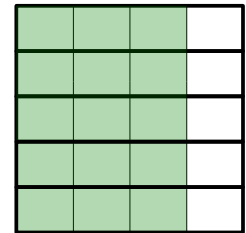
$$\frac{1}{3} = \frac{5}{15}$$



$$\frac{2}{3} = \frac{8}{12}$$



$$\frac{3}{4} = \frac{15}{20}$$



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Transform the fractions into equivalent ones by changing their denominators and factors appropriately. Some examples are impossible to do. **Cross them out.**

$$\frac{3}{4} = \frac{\square}{12}$$

$$\frac{2}{7} = \frac{\square}{21}$$

$$\frac{3}{9} = \frac{\square}{3}$$

$$\frac{\square}{6} = \frac{4}{12}$$

$$\frac{\square}{9} = \frac{7}{26}$$

$$\frac{12}{8} = \frac{3}{\square}$$