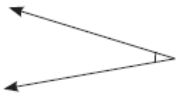
1. Luisa is a tile setter who works in Alberton, PEI. She is installing some tile in a room at the West Prince campus of Holland College. When installing tile, Luisa has to cut pieces of tile to fit the surface she is covering. Below are shown the angles of some pieces of tile that Luisa must cut.

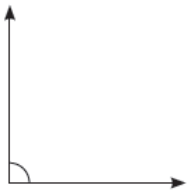
   For each of these angles, measure the angle. Then determine the measure of the resulting angles after each of the original angles has been bisected.

a)

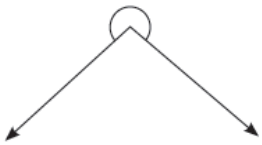


b)

c)



d)

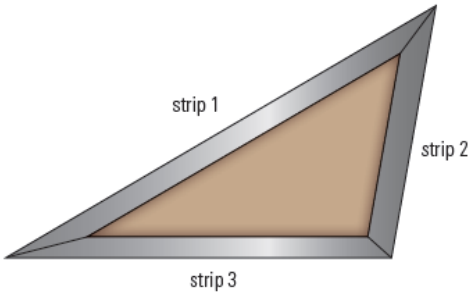


2. Jung Min has worked as a sheet metal worker for over 10 years. He has been hired to install work tables in the kitchen of the Charles S. Curtis Memorial Hospital, NL. These work tables need stainless steel edging bolted to their edges in order to reduce wear. Below is a scale (1:10) drawing of the stainless steel edging Jung Min will bolt over the top edges of one table. The edging has three mitred joints.

   a) Measure each angle.

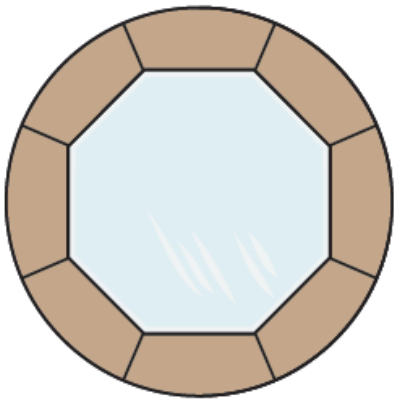
   b) Determine the measure of the bisector of each angle.

   c) Determine at what angle each end of each strip should be cut.

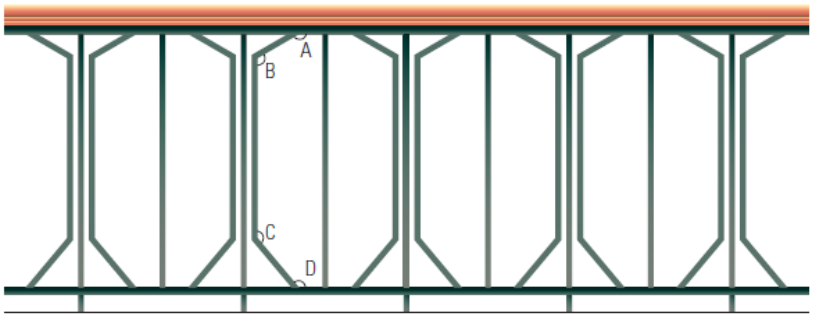


3. Imagine that you are a furniture-maker and have been asked to build a wood and glass tabletop according to the design shown here. Your client wants the outside to be made of wood, with an octagonal piece of glass in the centre. The tabletop is to be made of eight identical pieces of wood that have an arc on the outside edge, a straight side on the inside edge, and angled ends.

   The pieces of wood have to be cut so that their ends form mitre joints. If the mitre joints bisect the reflex angles outside of the octagon, at what angle relative to the straight sides of the wood must the ends be cut?

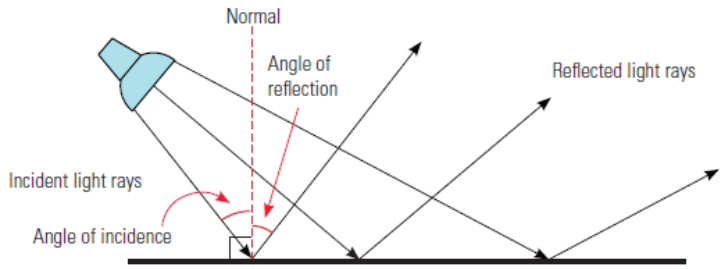


4. Jurek is a welder working on the construction of a pedestrian bridge in Kedgwick, New Brunswick. He is welding together the bridge railing. As a decorative element, Jurek is welding metal strips on each post as shown below. Determine the measure of each angle bisector for angles A, B, C, and D.

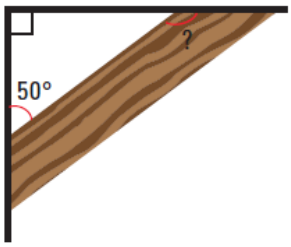


5. When a ray of light is reflected from a flat surface, the light strikes the surface at an angle (the angle of incidence) that is equal to the angle of reflection. Both of these angles are measured from a line that is perpendicular to the surface (called the normal).

   Using the diagram below, measure the total angle between each pair of incident and reflected rays in the left, middle, and right rays. Then determine the angles of incidence and reflection for each ray.

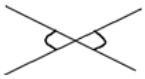


6. A carpenter needs to cut a 2-by-4 piece of wood that will fit in a corner, as shown in the diagram below. If one end of the wood forms a 50° angle with one wall, at what angle must the other end be cut (at the indicated angle) to lay flat against the other wall? Why must that end be cut to that measure?

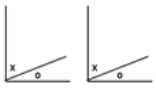


GEOMETRY THEOREMS...

- **ANGLE THEOREMS:**



(OAT) Opposite Angle Theorem → If two lines intersect then the opposite angles are equal.

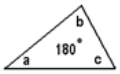


(CAT) Complementary Angle Theorem → If two angles are equal, then their complements are equal.

Note: Complementary angles sum to 90°.

(SAT) Supplementary Angle Theorem → If two angles are equal, then their supplements are equal.

Note: Supplementary angles sum to 180°.



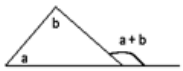
(SATT) Sum of the Angles of a Triangle Theorem → The sum of the interior angles of a triangle is 180°.

Note: When two angles of one triangle are respectively equal to two angles of another triangle, the third angles are equal.

Note: When two angles of one triangle are respectively equal to two angles of another triangle, the third angles are equal.

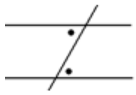
(ITT) <u>Isosceles Triangle Theorem</u> → The angles opposite the equal sides are equal.

Note: Isosceles triangles have 2 equal sides.

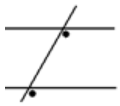


(EAT) <u>Exterior Angle Theorem</u> → An exterior angle of a triangle is equal to the sum of the interior and non-adjacent angles.

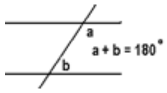
- **TRANSVERSAL PARALLEL THEOREMS**:



(AIA) Alternate Interior Angles → When a transversal intersects a set of parallel lines, the alternate interior angles are equal.
Note: "Z" pattern



(CA) Corresponding Angles → When a transversal intersects a set of parallel lines, the corresponding angles are equal.
Note: "F" pattern



(CIA) Co-Interior Angles → When a transversal intersects a set of parallel lines, the co-interior angles sum to 180°.
Note: "C" pattern

Homework - Questions 1-6 included in Slides and Questions 1-3 on handout given out in class.

Attachments

7.2 - Build Your Skills Solutions.pdf