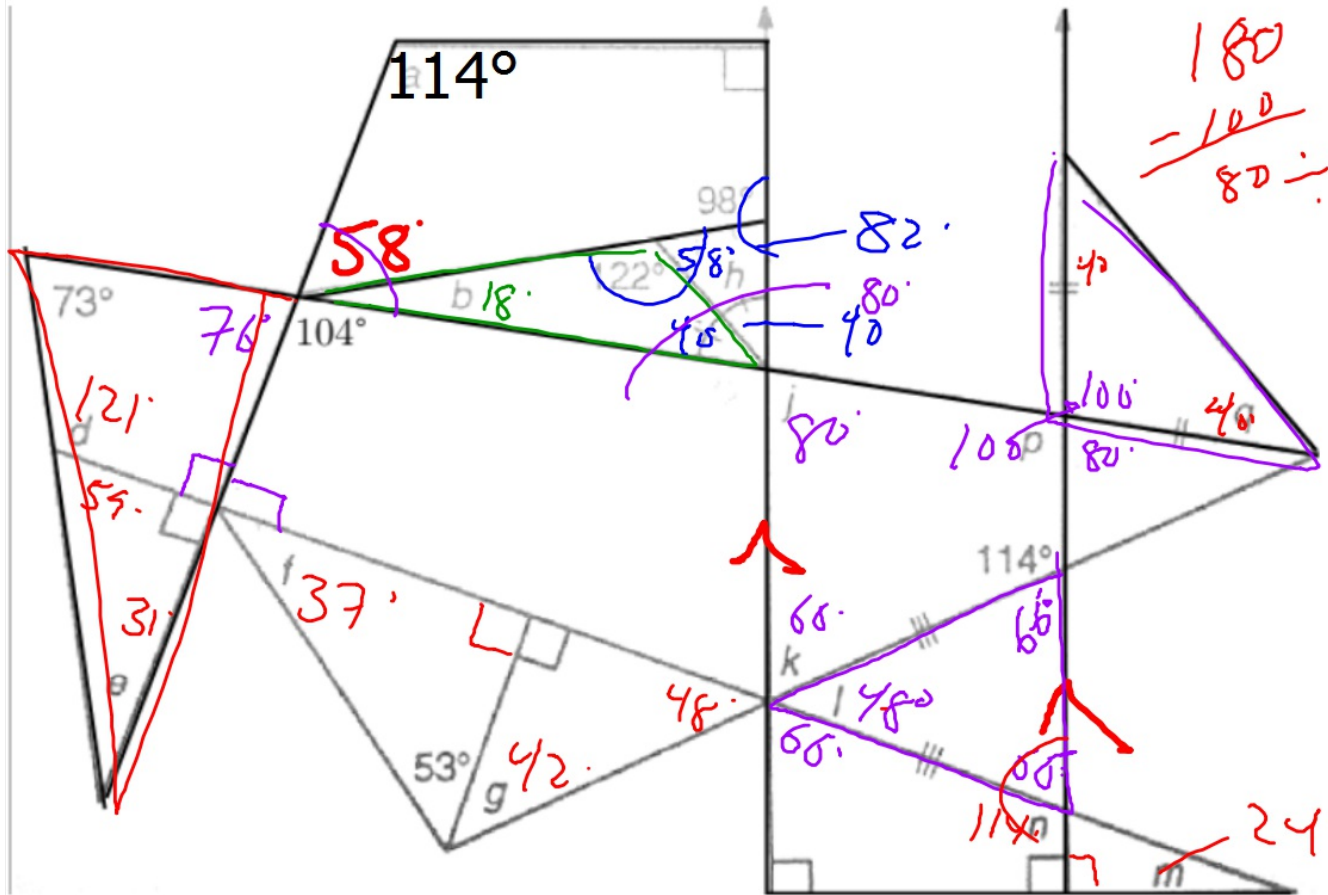


Good afternoon: attach warmup to notebooks, find the angles



reminders:

- projects graded by Monday
- Assess. Monday

HW p. 189

5. 102

6. 34

7. 60

8. 62, 96

11. $x=38, 90, 17, 73$

12. 55

13. 66

14. 34

15. 86

16. 58

17. 45

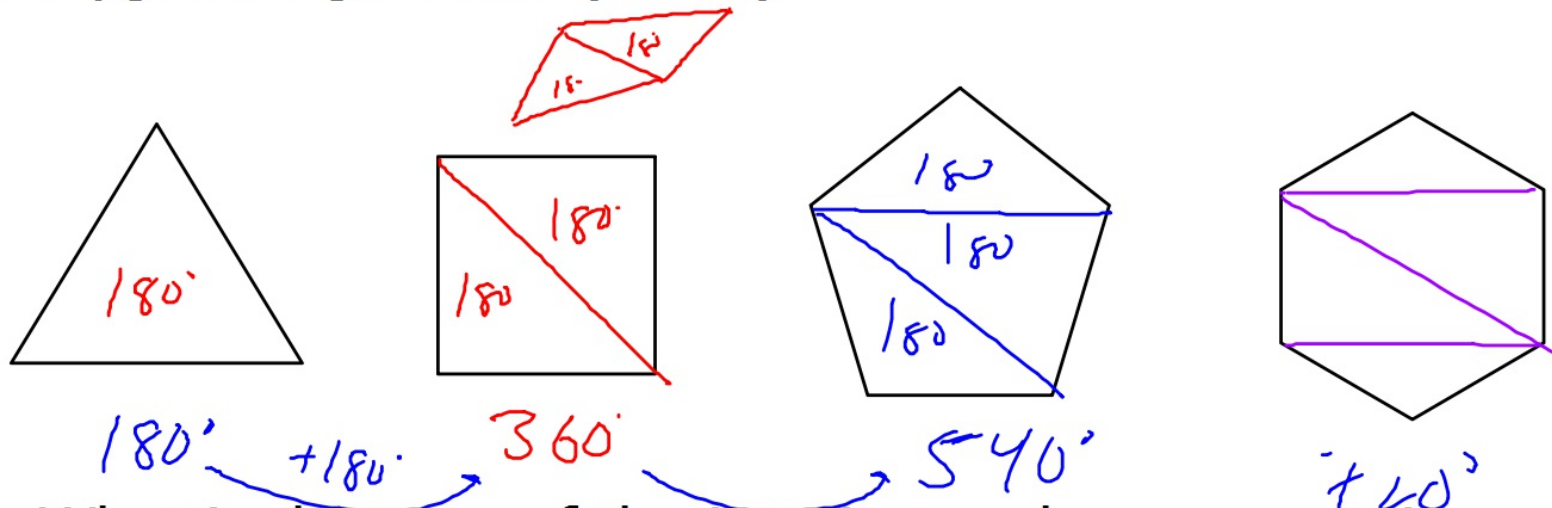
18. 26

19. 41



Polygon

Polygon Angle Sum (notes)



What is the sum of the interior angle measures in each shape?

3 sides: 1 triangle
 4 sides: 2 triangle
 5 sides: 3 triangles
 6 sides: 4 triangles

...

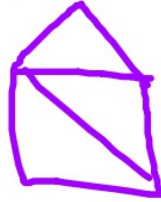
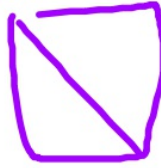
10 sides: 8 triangles

...

1000 sides: 998 triangles

...

n sides: _ triangles



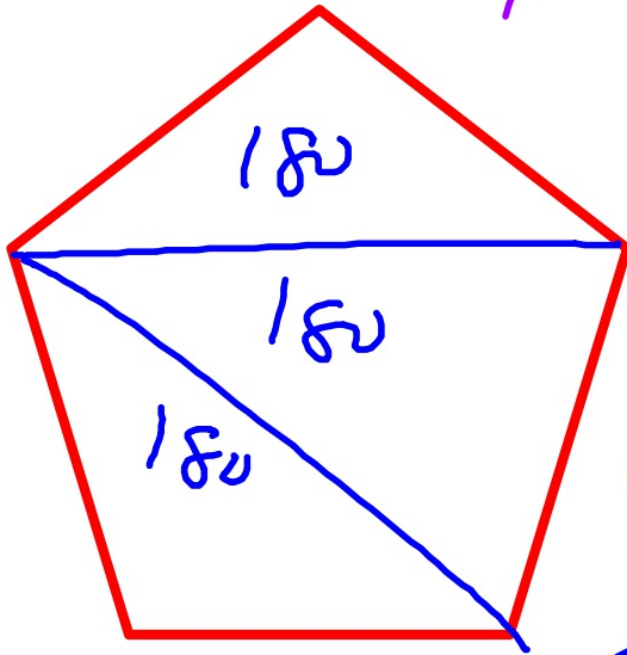
Polygon Angle Sum Theorem

For an n -sided polygon,
 the sum of its angles
 measures

$$\underbrace{(n - 2)}_{\text{\# of } \triangle\text{'s}} \times \underbrace{180^\circ}_{\text{degrees per tri.}}$$

How many degrees is each interior angle of a regular pentagon?

108°



Same angles
Same sides

540 total
5

108° each

How many degrees is each interior angle of a regular decagon?

10 sides \rightarrow 8 \triangle

5 pent

6 hex

7 sept/hept

8 oct

9 non

10 dec

$$8 \times 180 = 1440 \text{ total}$$
$$\frac{1440}{10}$$

144° each.



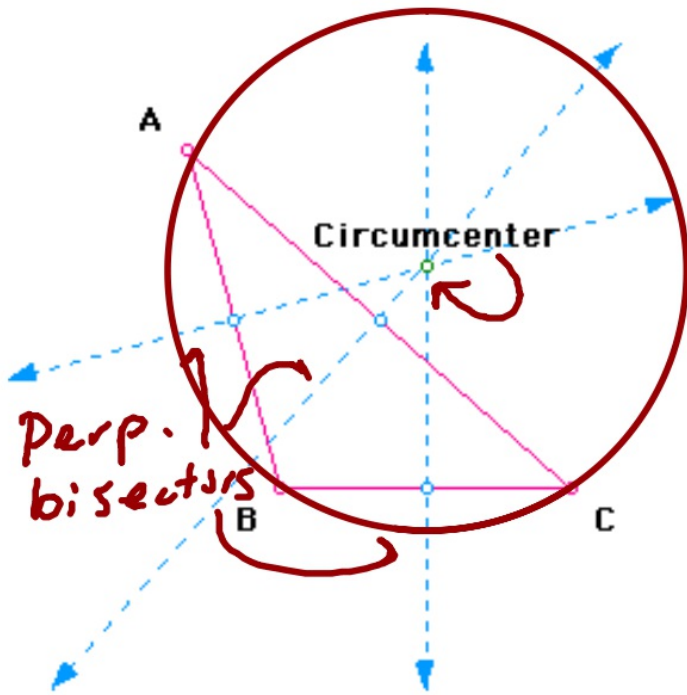
Share with your elbow partner:

1. Something you've learned today
2. Something you're still not sure about

Circumcenter and Incenter (notes)

1. Draw, then cut out two large non-congruent triangles from construction paper. Have a mixture of right, acute, and obtuse among your tablemates.
2. Label one ABC and the other PQR
3. Fold vertex A onto B and crease, then unfold. Mark the line
4. Fold vertex C onto B and crease, then unfold. Mark the line
5. Fold vertex C onto A and crease, then unfold. Mark the line

What do you notice about the 3 lines? What do you notice about your neighbors' triangles and lines?



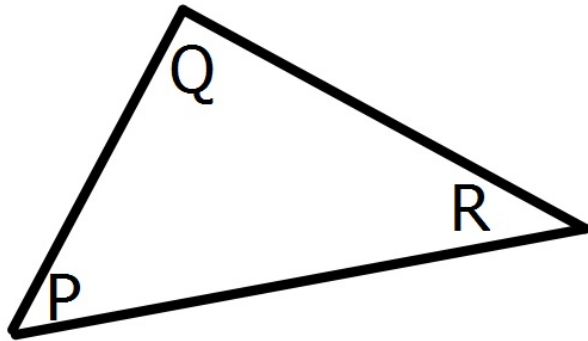
Glue your triangle into your notebooks

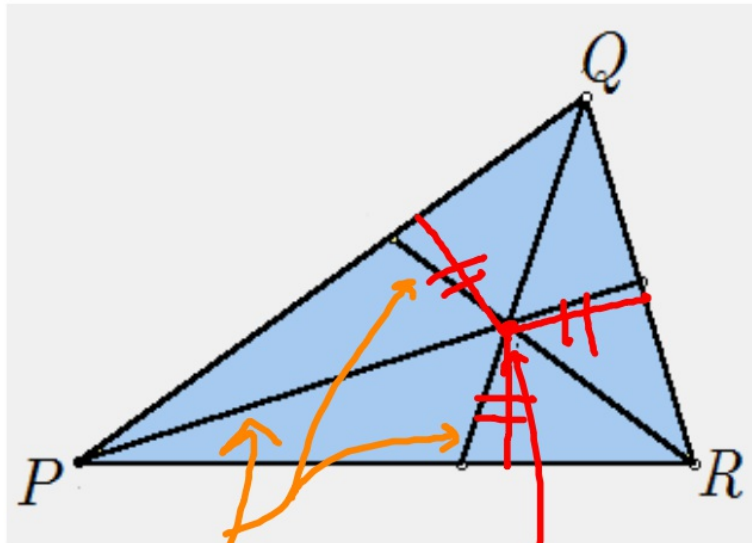
The folds represent perpendicular bisectors

Their point of concurrency (where they all intersect) is called the circumcenter

1. Fold segment PQ onto PR and crease, mark the line.
2. Fold segment QR onto PR and crease, mark the line.
3. Fold segment PQ onto RQ and crease, mark the line.

What do you notice about the 3 lines? Is your observation true for your neighbors?





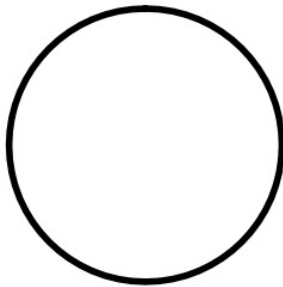
The folds are angle bisectors

The point of concurrency of the angle bisectors is the incenter

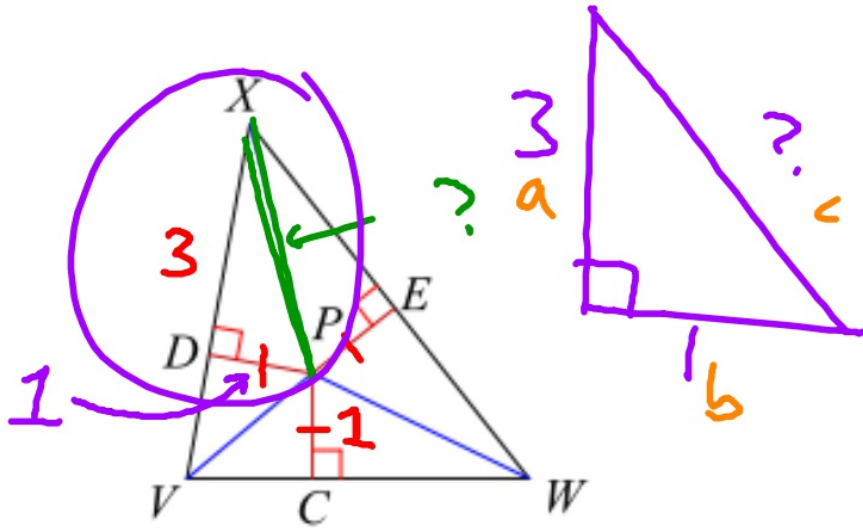
The incenter is equidistant from all 3 sides of the triangle

Angle Bisectors

incenter



3) Find XP if $PC = 1$
and $XD = 3$.



$$3^2 + 1^2 = c^2$$

$$9 + 1 = c^2$$

$$\sqrt{10} = \sqrt{c^2}$$

$$\approx 3.16 = c$$

HW

handout on triangle centers and angle measures

Assessment Monday