Routine Angles and Shapes Practice #3

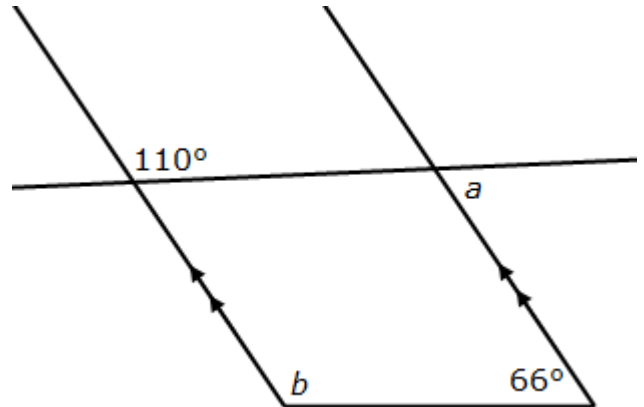1.

Angle *a* = ...

Reasons = ...

....

Angle *b* = ...

Reason = ...

110°

a

b   66°

2.

Angle ∠OZY = 62°

Angle ∠YXO= ....

Reasons = ...

....

X

Y

O

Z

3.
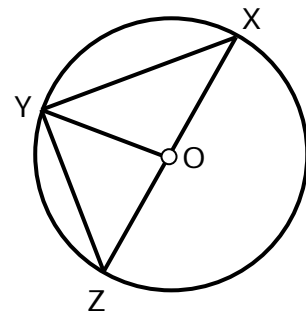
Calculate the interior angles of a regular pentagon. Explain your steps.
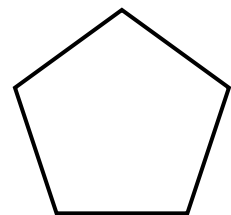
....

....

4.

The interior reflex angles of the regular star are all 252°.

Give the size of the interior acute angles = ...
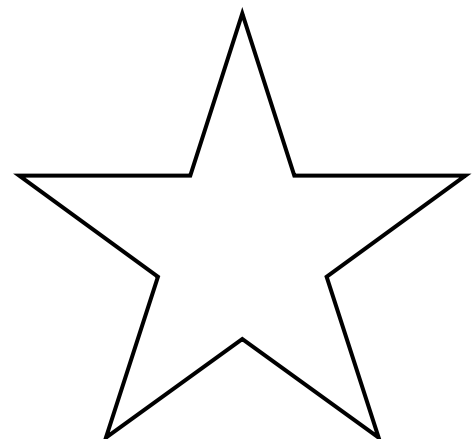
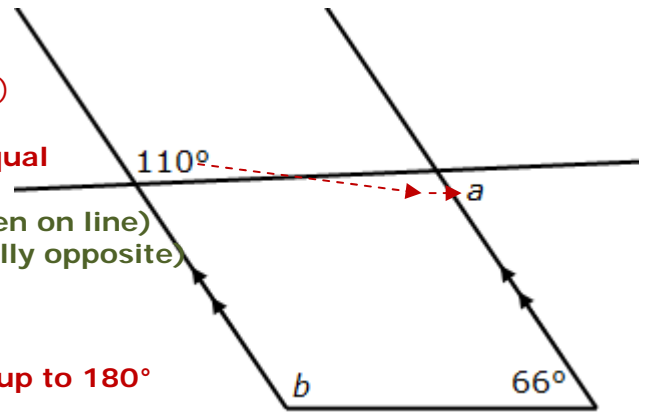# Answers: Routine Angles and Shapes Practice #3

1.

Angle *a* = **70°**   (not 66, those lines aren't parallel)

Reasons = **Alternate angles on parallel lines are equal**
               Angles on a straight line add up to 180°
               (or, corresponding angles are equal, then on line)
               (or, cointerior add to 180°, then vertically opposite)

Angle *b* = **114°**

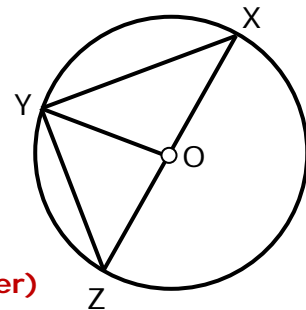Reason = **Co-interior angles on parallel lines add up to 180°**

2.

Angle ∠OZY = 62°

Angle ∠YXO = **28°**

Reasons = **Angle XYZ is 90° (formed from ends of a diameter)**

               180° − 90° − 62° = 28°   (interior angles in a triangle = 180°)
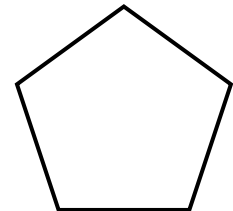
               (line OY can be ignored)

3.

Calculate the interior angles of a regular pentagon. Show your steps.

               Sum of angles in a pentagon = 3 × 180 = 540°

               540 ÷ 5 = 108° (since all angles are equal in regular pentagon)

4.

The interior reflex angles of the regular star are all 252°.
Give the size of the interior acute angles = **36°**

Opposite side of reflex angle is 108° (360 − 252)
Triangle formed from star tips is isosceles, so small angles are = 36°
Two small angles + point = 108° (interior angle of pentagon)
=> angle at point = 36°

Or via internal angles of decagon add to 8 × 180° = 1440° = 5 × 252° + 5 × x