Challenge: Skills and Applications

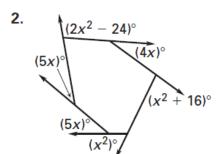
Find the possible values of x.

1.
$$(4x^2 - 12)^{\circ}$$

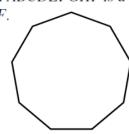
$$(19x + 12)^{\circ} \quad (3x^2)^{\circ}$$

$$(8x + 36)^{\circ}$$

$$(2x^2 + 18)^{\circ}$$



- **4.** A convex heptagon has four interior angles that measure 95°, 118°, 146°, and 160°, respectively. If the remaining interior angles are congruent, what is the measure of each remaining interior angle?
- **5.** A convex 14-gon has six interior angles that each measure 164°. If the remaining interior angles are congruent, what is the measure of each remaining interior angle?
 - 7. Polygon ABCDEFGHI is a regular nonagon. If \overrightarrow{BC} and \overrightarrow{FG} intersect at point K, find $m \angle BKF$.



8. Polygon *OPQRSTUVWXYZ* is a regular dodecagon. If \overrightarrow{QR} and \overrightarrow{XY} intersect at point J, find $m \angle QJY$

