8 In the figure, \( CD \) is tangent to the circle, angle \( C = 42^\circ \), arc \( BD = 32^\circ \). Find in degrees the value of each of the angles of the triangle \( ABD \). \([12]\)

9 The diagonals of an equilateral parallelogram (rhombus) are 24 inches and 70 inches. Find \( (a) \) the area, \( (b) \) the perimeter, \( (c) \) the altitude. \([12]\)

10 Given \( a, b \) and \( c \), lines of unequal length. Construct a fourth line \( x \) such that \( x = \frac{ac}{b} \). Give proof. \([12]\)

11 \( a \) Construct a quadrilateral three of whose angles are \( 150^\circ, 90^\circ \) and \( 60^\circ \). \([10]\)

\( b \) How many degrees are there in the remaining angle? Why? \([2]\)

12 Given a circle circumscribed about triangle \( ABC \). \( D \) is the midpoint of arc \( BC \). \( AD \) and \( DC \) are drawn.

To prove \( AB \times AC = AE^2 + BE \times EC \)

Assign a reason for each of the following statements:

1 \( \angle BAD \) is measured by \( \frac{1}{4} \) arc BD
2 \( \angle CAD \) is measured by \( \frac{1}{4} \) arc CD
3 \( \angle B = \angle D \)
4 \( \triangle BAE \) is similar to \( \triangle DAC \)
5 \( \frac{AB}{AE} \times ED = \frac{AC}{AC} \)
6 \( AB \times AC = AE^2 + AE \times ED \)
7 \( AE \times ED = BE \times EC \)
8 \( AB \times AC = AE^2 + BE \times EC \)