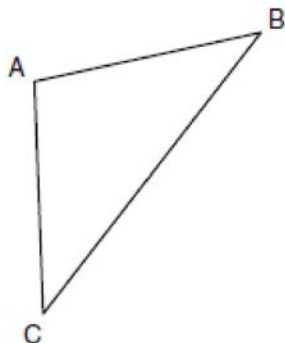


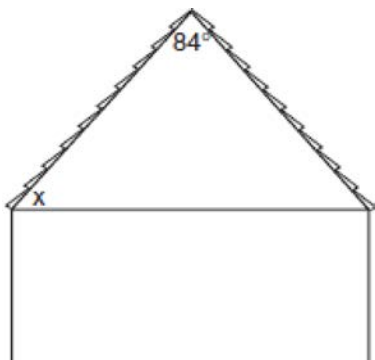
G.SRT.B.5: Isosceles Triangle Theorem 1b

- 1 In the diagram of $\triangle ABC$ below, $\overline{AB} \cong \overline{AC}$. The measure of $\angle B$ is 40° .



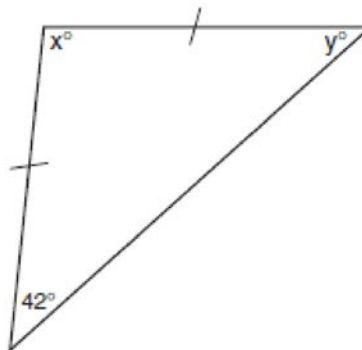
What is the measure of $\angle A$?

- 2 The accompanying diagram shows the roof of a house that is in the shape of an isosceles triangle. The vertex angle formed at the peak of the roof is 84° .



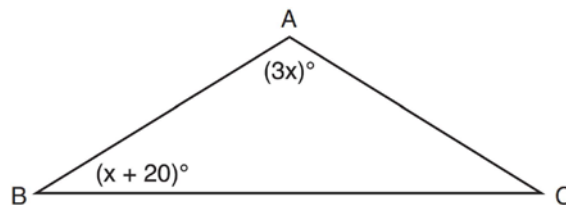
What is the measure of x ?

- 3 Tina wants to sew a piece of fabric into a scarf in the shape of an isosceles triangle, as shown in the accompanying diagram.



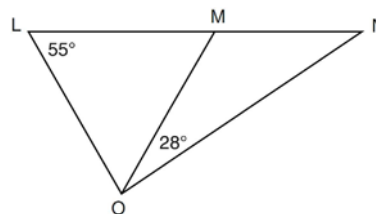
What are the values of x and y ?

- 4 In the diagram below of $\triangle ABC$, $\overline{AB} \cong \overline{AC}$, $m\angle A = 3x$, and $m\angle B = x + 20$.



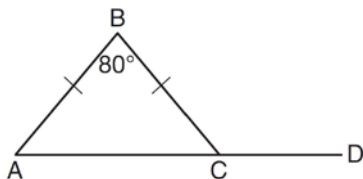
What is the value of x ?

- 5 In the diagram below, $\triangle LMO$ is isosceles with $LO = MO$.



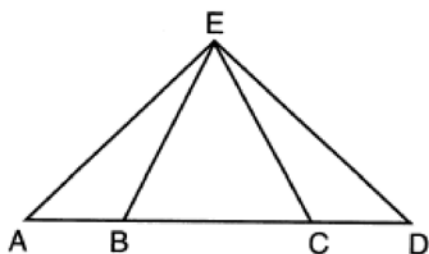
If $m\angle L = 55$ and $m\angle NOM = 28$, what is $m\angle N$?

- 6 In the diagram below of isosceles $\triangle ABC$, the measure of vertex angle B is 80° . If \overline{AC} extends to point D , what is $m\angle BCD$?



- 7 In $\triangle JKL$, $\overline{JL} \cong \overline{KL}$. If $m\angle J = 58$, then $m\angle L$ is
- 8 In $\triangle FGH$, $m\angle F = m\angle H$, $GF = x + 40$, $HF = 3x - 20$, and $GH = 2x + 20$. The length of GH is
- 9 The vertex angle of an isosceles triangle measures 15 degrees more than one of its base angles. How many degrees are there in a base angle of the triangle?

- 10 In the diagram below of $\triangle AED$ and \overline{ABCD} , $\overline{AE} \cong \overline{DE}$.



Which statement is always true?

- 1) $\overline{EB} \cong \overline{EC}$
- 2) $\overline{AC} \cong \overline{DB}$
- 3) $\angle EBA \cong \angle ECD$
- 4) $\angle EAC \cong \angle EDB$

- 11 In $\triangle ABC$, $\overline{AB} \cong \overline{BC}$. An altitude is drawn from B to \overline{AC} and intersects \overline{AC} at D . Which conclusion is *not* always true?
- 1) $\angle ABD \cong \angle CBD$
 - 2) $\angle BDA \cong \angle BDC$
 - 3) $\overline{AD} \cong \overline{BD}$
 - 4) $\overline{AD} \cong \overline{DC}$
- 12 In isosceles triangle ABC , $AB = BC$. Which statement will always be true?
- 1) $m\angle B = m\angle A$
 - 2) $m\angle A > m\angle B$
 - 3) $m\angle A = m\angle C$
 - 4) $m\angle C < m\angle B$
- 13 If the vertex angles of two isosceles triangles are congruent, then the triangles must be
- 1) acute
 - 2) congruent
 - 3) right
 - 4) similar
- 14 In isosceles triangle DOG , the measure of the vertex angle is three times the measure of one of the base angles. Which statement about $\triangle DOG$ is true?
- 1) $\triangle DOG$ is a scalene triangle.
 - 2) $\triangle DOG$ is an acute triangle.
 - 3) $\triangle DOG$ is a right triangle.
 - 4) $\triangle DOG$ is an obtuse triangle.

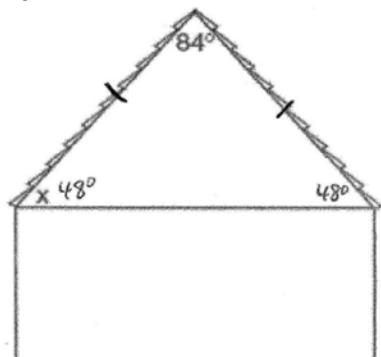
G.SRT.B.5: Isosceles Triangle Theorem 1b

Answer Section

- 1 ANS:
 100°
 $180 - (40 + 40) = 100$

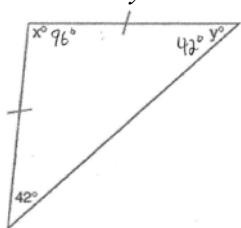
REF: 080903ge

- 2 ANS:
 48°



REF: 060615a

- 3 ANS:
 $x = 96$ and $y = 42$



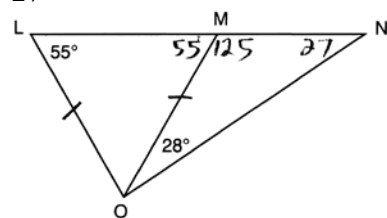
REF: 060510a

- 4 ANS:
 28
 $3x + x + 20 + x + 20 = 180$
 $5x = 40$
 $x = 28$

REF: 081222ge

5 ANS:

27



REF: 061211ge

6 ANS:

130

$$180 - \frac{180 - 80}{2} = 130$$

REF: 011508ge

7 ANS:

64

$$180 - 2(58) = 64$$

REF: 081510ge

8 ANS:

60

$$x + 40 = 2x + 20 \quad GH = 2(20) + 20 = 60$$

$$20 = x$$

REF: 081416ge

9 ANS:

55

$$x + x + x + 15 = 180$$

$$3x + 15 = 180$$

$$3x = 165$$

$$x = 55$$

REF: 061407ge

10 ANS: 4

Isosceles triangle theorem.

REF: 062207geo

11 ANS: 3

REF: 011007ge

12 ANS: 3

REF: 061004ge

13 ANS: 4

REF: 061124ge

14 ANS: 4

$$A = 3x \quad 3x + x + x = 180$$

$$B = x \quad 5x = 180 \quad \text{The vertex angle is } 3(36) = 108^\circ.$$

$$C = x \quad x = 36$$

REF: 060107a