

Law of Cosines – Ambiguous Case

Find the possible lengths of the indicated side:

1. In $\triangle ABC$ with $a = 4$, $b = 3$, and $\angle B = 34^\circ$, find c
2. In $\triangle XYZ$ with $x = 12$, $y = 5$, and $\angle X = 13^\circ$, find z
3. In $\triangle ABC$ with $a = 4$, $b = 5$, and $\angle B = 34^\circ$, find c
4. In $\triangle XYZ$ with $x = 12$, $y = 15$, and $\angle X = 13^\circ$, find z
5. In $\triangle ABC$ with $a = 4$, $b = 2$, and $\angle B = 34^\circ$, find c
6. In $\triangle XYZ$ with $x = 12$, $y = 60$, and $\angle X = 13^\circ$, find z
7. In $\triangle RST$ with $r = 20$, $t = 16$, and $\angle R = 130^\circ$, find s
8. In $\triangle OBT$ with $o = 19$, $t = 11$, and $\angle O = 170^\circ$, find b

Find the measure of the specified angle.

9. $m\angle C$ in $\triangle ABC$ if $\angle A = 19^\circ$, $a = 25$, and $c = 30$
10. $m\angle D$ in $\triangle HDJ$ if $\angle H = 28^\circ$, $h = 50$, and $d = 20$
11. $m\angle Z$ in $\triangle XYZ$ if $\angle X = 58^\circ$, $x = 9.3$, and $z = 7.5$
12. $m\angle G$ in $\triangle BIG$ if $\angle B = 110^\circ$, $b = 1000$, and $g = 900$

Answers

1. 5.315 or 1.317
2. 16.82
3. 7.79
4. 26.13 or 3.10
5. no values
6. No values
7. 5.52
8. 8.07
9. 23° or 157°
10. 10.82°
11. 43.15°
12. 57.75°