

Law of Cosines

For problems 1 – 6, find the length of the side opposite the given angle:

1. In $\triangle ABC$ with $b = 4$, $c = 5$, and $\angle A = 51^\circ$
2. In $\triangle ABC$ with $a = 7$, $c = 9$, and $\angle B = 34^\circ$
3. In $\triangle PQR$ with $p = 3$, $q = 2$, and $\angle R = 138^\circ$
4. In $\triangle HJK$ with $h = 8$, $j = 6$, and $\angle K = 172^\circ$
5. In $\triangle DEF$ with $d = 36.2$, $f = 49.8$, and $\angle E = 67^\circ 40'$
6. In $\triangle BAD$ with $a = 2.897$, $d = 5.921$, and $\angle B = 119^\circ 23'$

For problems 7 – 12, find the measure of the specified angle.

7. $m\angle A$ in $\triangle ABC$ if $a = 2$, $b = 3$, and $c = 4$
8. $m\angle C$ in $\triangle ABC$ if $a = 5$, $b = 6$, and $c = 8$
9. $m\angle T$ in $\triangle BAT$ if $b = 6$, $a = 7$, and $t = 12$
10. $m\angle E$ in $\triangle PEG$ if $p = 12$, $e = 20$, and $g = 16$
11. $m\angle Y$ in $\triangle GYP$ if $g = 7$, $y = 5$, and $p = 13$
12. $m\angle N$ in $\triangle GON$ if $g = 8$, $o = 3$, and $n = 12$
13. $m\angle O$ in $\triangle NOD$ if $n = 1475$, $o = 2053$, and $d = 1428$
14. $m\angle Q$ in $\triangle SQR$ if $s = 1504$, $q = 2465$, and $r = 1953$

Answer Bank

49.20

4.682

3.978

5.054

92.87

13.97

28.57

134.62

7.764

not a triangle

90