

More problems for section 4.10 of *Essentials of Precalculus with Calculus Previews* by Zill and Dewar, 6e.

1. a , b , and c are the two legs and hypotenuse respectively of a right triangle. α is the angle opposite side a and β is the angle opposite side b . Find α , β , a , b , and c from the given information. (You must use a calculator to solve these problems.)

a. $\alpha = 25^\circ$, $c = 13$

b. $\alpha = 72^\circ$, $c = 22$

c. $\alpha = 40^\circ$, $c = 4$

d. $\alpha = 15^\circ$, $a = 800$

e. $\alpha = 21^\circ$, $a = 75$

f. $\alpha = 50^\circ$, $a = 8$

g. $\alpha = 49^\circ$, $b = 42$

h. $\alpha = 35^\circ$, $b = 3$

i. $\alpha = 83^\circ$, $b = 110$

j. $a = 13$, $b = 42$

k. $a = 5$, $b = 9$

l. $a = 91$, $b = 2$

m. $a = 2$, $c = 13$

n. $a = 7$, $c = 5$

o. $a = 5$, $c = 7$

Answers

1a. $\beta = 65^\circ$, $a = 11.782$, $b = 5.494$ 1b. $\beta = 18^\circ$, $a = 20.923$, $b = 6.798$ 1c. $\beta = 50^\circ$, $a = 2.571$, $b = 3.064$ 1d. $\beta = 75^\circ$, $c = 3090.962$, $b = 2985.640$ 1e. $\beta = 69^\circ$, $c = 209.282$, $b = 195.381$ 1f. $\beta = 40^\circ$, $c = 10.443$, $b = 6.712$ 1g. $\beta = 41^\circ$, $a = 48.315$, $c = 64.018$ 1h. $\beta = 55^\circ$, $a = 2.100$, $c = 3.662$ 1i. $\beta = 7^\circ$, $a = 895.878$, $c = 902.605$ 1j. $\alpha = 17.199^\circ$, $\beta = 72.801^\circ$, $c = 43.966$ 1k. $\alpha = 29.055^\circ$, $\beta = 60.945^\circ$, $c = 10.296$ 1l. $\alpha = 88.741^\circ$, $\beta = 1.259^\circ$, $c = 91.022$ 1m. $\alpha = 8.850^\circ$, $\beta = 81.150^\circ$, $b = 12.845$ 1n. no solutions 1o. $\alpha = 45.585^\circ$, $\beta = 44.415^\circ$, $b = 4.899$