Answer key

The method: The law of cosines

$c^2 = a^2 + b^2 - 2ab\cos C$. Use it when you know two sides and the angle between them.

$a = 10, b = 16, C = 60°$: $c = 14$

$c^2 = a^2 + b^2 - 2ab\cos C$ $\cos 60° = ½$

$10^2 + 16^2 - 2 \times 10 \times 16 \times ½ = 196$ $c^2 = 196$

$c = \sqrt{196} = 14$

$a = 14, b = 16, C = 120°$: $c = 26$

$c^2 = a^2 + b^2 - 2ab\cos C$ $\cos 120° = -½$

$14^2 + 16^2 - 2 \times 14 \times 16 \times (-½) = 676$ $c^2 = 676$

$c = \sqrt{676} = 26$

Problems 1 and 2 worked out · Version 0A

$a = 14, b = 16, C = 120°$: $c = 26$

$c^2 = a^2 + b^2 - 2ab\cos C$ $\cos 120° = -½$

$14^2 + 16^2 - 2 \times 14 \times 16 \times (-½) = 676$ $c^2 = 676$

$c = \sqrt{676} = 26$

$a = 16, b = 14, C = 120°$: $c = 26$

$c^2 = a^2 + b^2 - 2ab\cos C$ $\cos 120° = -½$

$16^2 + 14^2 - 2 \times 16 \times 14 \times (-½) = 676$ $c^2 = 676$

$c = \sqrt{676} = 26$

The law of cosines · Version 0A

1) 26 2) 26 3) 7 4) 13 5) 14 6) 14 7) 19 8) 7
9) 13 10) 13 11) 13 12) 13 13) 14 14) 7