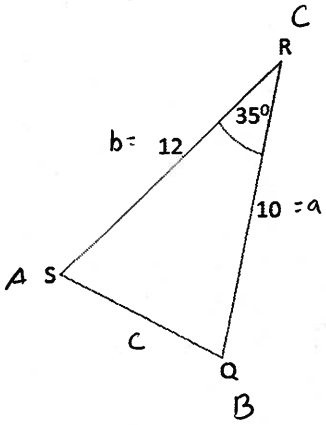
Math 20-1

KEY

L52 – FQ – 2.4 Cosine Law

Q1: Determine the length of QS. *(1 mark)*



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

$c^2 = (10)^2 + (12)^2 - 2(10)(12)(\cos 35)$

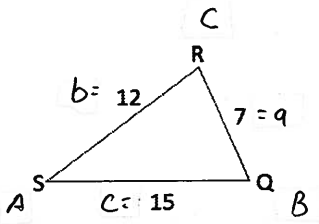
$c^2 = 100 + 144 - 196.6$

$c^2 = 47.4$

$\boxed{c = 6.9}$

$\boxed{QS = 6.9}$ ⇦

Q2: Determine the measure of ∠R. *(1 mark)*



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

$15^2 = 7^2 + 12^2 - 2(7)(12)\cos C$

$225 = 49 + 144 - 168\cos C$

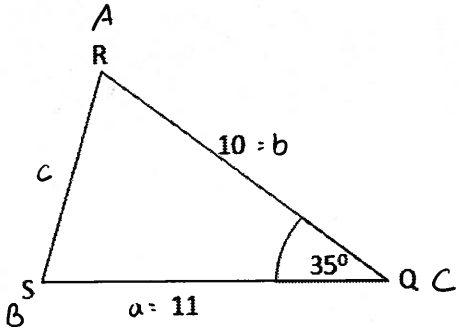
$32 = -168\cos C$

$-0.19 = \cos C$

$\boxed{\angle C = 101°}$

$\boxed{\angle R = 101°}$ ⇦

Q3: Solve the triangle. *(3 marks)*



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

$c^2 = (11)^2 + (10)^2 - 2(11)(10)\cos 35$

$c^2 = 121 + 100 - 180.2$

$c^2 = 40.8$

$\boxed{c = 6.387}$ → $\boxed{RS = 6.387}$ ⇦

$\frac{\sin C}{c} = \frac{\sin A}{a}$

$\frac{\sin 35}{6.387} = \frac{\sin A}{11}$

$\sin A = 0.9878...$

$\boxed{\angle A = 81.1°}$ → $\boxed{\angle R = 81.1°}$ ⇦

$\angle A + \angle B + \angle C = 180$

$\boxed{\angle B = 63.9°}$ → $\boxed{\angle S = 63.9°}$ ⇦

MARKING:

Beginning	0.0 – 2.0
Progressing	2.5 – 3.5
Competent	4.0 – 4.5
Exemplary	5.0