

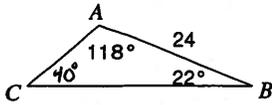
Name _____

The Law of Sines

Date _____ Period _____

Find each measurement indicated. Round your answers to the nearest tenth.

Q1. Find AC

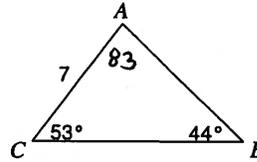


$$\frac{\sin C}{c} = \frac{\sin B}{b}$$

$$\frac{\sin 40}{24} = \frac{\sin 22}{b}$$

$$b = 14.0$$

Q2. Find AB

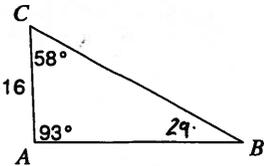


$$\frac{\sin B}{b} = \frac{\sin C}{c}$$

$$\frac{\sin 44}{7} = \frac{\sin 53}{c}$$

$$c = 8.0$$

Q3. Find BC

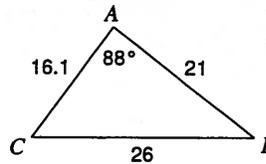


$$\frac{\sin A}{a} = \frac{\sin B}{b}$$

$$\frac{\sin 93}{a} = \frac{\sin 29}{16}$$

$$a = 33.0$$

Q4. Find m∠C



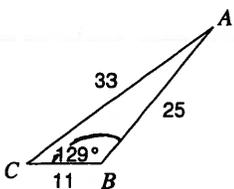
$$\frac{\sin C}{c} = \frac{\sin A}{a}$$

$$\frac{\sin C}{21} = \frac{\sin 88}{26}$$

$$\sin C = 0.807$$

$$\angle C = 53.8^\circ$$

Q5. Find m∠A



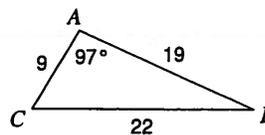
$$\frac{\sin B}{b} = \frac{\sin A}{a}$$

$$\frac{\sin 29}{33} = \frac{\sin A}{11}$$

$$\sin A = 0.259$$

$$\angle A = 15.0^\circ$$

Q6. Find m∠C



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

$$\frac{\sin C}{19} = \frac{\sin 97}{22}$$

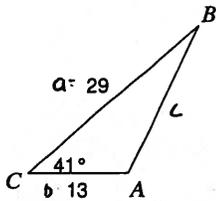
$$\sin C = 0.857$$

$$\angle C = 59.0^\circ$$

The Law of Cosines

Find each measurement indicated. Round your answers to the nearest tenth.

Q7. Find AB



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

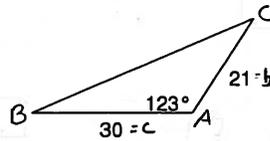
$$c^2 = (29)^2 + (13)^2 - 2(29)(13) \cos 41$$

$$c^2 = 841 + 169 - 569.05$$

$$c^2 = 440.95$$

$$c = 21.0$$

Q8. Find BC



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

$$a^2 = b^2 + c^2 - 2bc \cos A$$

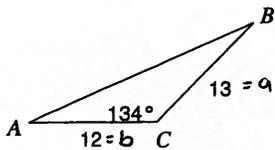
$$a^2 = (21)^2 + (30)^2 - 2(21)(30) \cos 123$$

$$a^2 = 441 + 900 + 686.2$$

$$a^2 = 2027.2$$

$$a = 45.0$$

Q9. Find AB



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

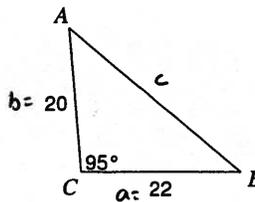
$$c^2 = (13)^2 + (12)^2 - 2(13)(12) \cos 134$$

$$c^2 = 169 + 144 + 216.7$$

$$c^2 = 529.7$$

$$c = 23.0$$

Q10. Find AB



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

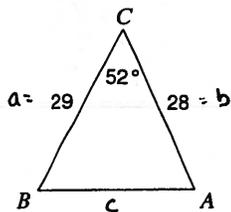
$$c^2 = (22)^2 + (20)^2 - 2(22)(20) \cos 95$$

$$c^2 = 484 + 400 + 76.7$$

$$c^2 = 960.7$$

$$c = 31.0$$

Q11. Find m∠A



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

$$c^2 = (29)^2 + (28)^2 - 2(29)(28) \cos 52$$

$$c^2 = 841 + 784 - 999.8$$

$$c^2 = 625.16$$

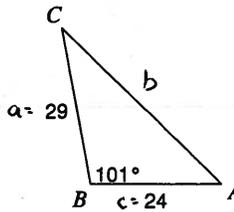
$$c = 25.0$$

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

$$\frac{\sin 52}{25} = \frac{\sin A}{29}$$

$$\angle A = 66^\circ$$

Q12. Find m∠C



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

$$b^2 = a^2 + c^2 - 2ac \cos B$$

$$b^2 = (29)^2 + (24)^2 - 2(29)(24) \cos 101$$

$$b^2 = 841 + 576 + 265.6$$

$$b^2 = 1682.6$$

$$b = 41.0$$

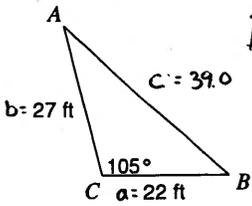
$$\frac{\sin B}{b} = \frac{\sin C}{c}$$

$$\frac{\sin 101}{41.0} = \frac{\sin C}{24}$$

$$\angle C = 35.1^\circ$$

Solve each triangle. Round your answers to the nearest tenth.

Q13.



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

$$c^2 = (22)^2 + (27)^2 - 2(22)(27) \cos 105^\circ$$

$$\boxed{c = 39.0}$$

$$\frac{\sin C}{c} = \frac{\sin B}{b}$$

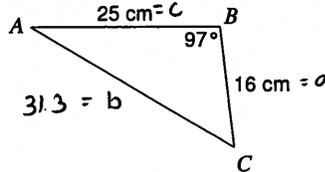
$$\frac{\sin 105}{39.0} = \frac{\sin B}{27}$$

$$\boxed{\angle B = 42.0^\circ}$$

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

$$\boxed{\angle A = 33^\circ}$$

Q14.



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

$$b^2 = a^2 + c^2 - 2ac \cos B$$

$$b^2 = (16)^2 + (25)^2 - 2(16)(25) \cos 97^\circ$$

$$b^2 = 256 + 625 + 97.5$$

$$\boxed{b = 31.3}$$

$$\frac{\sin B}{b} = \frac{\sin C}{c}$$

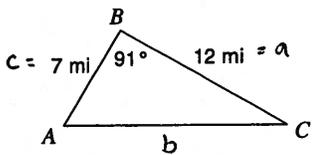
$$\frac{\sin 97}{31.3} = \frac{\sin C}{25}$$

$$\boxed{\angle C = 52.4^\circ}$$

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

$$\boxed{\angle A = 30.6^\circ}$$

Q15.



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

$$b^2 = a^2 + c^2 - 2ac \cos B$$

$$b^2 = (12)^2 + (7)^2 - 2(12)(7) \cos 91^\circ$$

$$b^2 = 144 + 49 + 2.9$$

$$\boxed{b = 14.0}$$

$$\frac{\sin B}{b} = \frac{\sin C}{c}$$

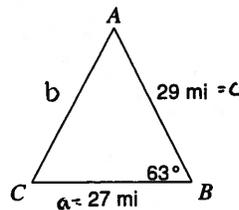
$$\frac{\sin 91}{14.0} = \frac{\sin C}{7}$$

$$\boxed{\angle C = 30.0}$$

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

$$\boxed{\angle A = 59^\circ}$$

Q16.



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

$$b^2 = a^2 + c^2 - 2ac \cos B$$

$$b^2 = (27)^2 + (29)^2 - 2(27)(29) \cos 63^\circ$$

$$b^2 = 729 + 841 - 710.4$$

$$\boxed{b = 29.3}$$

$$\frac{\sin B}{b} = \frac{\sin C}{c}$$

$$\frac{\sin 63}{29.3} = \frac{\sin C}{29}$$

$$\boxed{\angle C = 61.9^\circ}$$

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

$$\boxed{\angle A = 55.1^\circ}$$