

$$1. a=5, b=8, C=30^\circ$$

$$K = \frac{1}{2} ab \sin C$$

$$K = \frac{1}{2} (5 \times 8) \sin 30^\circ$$

$$K = 10$$

$$2. b=2, c=7, A=25^\circ$$

$$K = \frac{1}{2} bc \sin A$$

$$K = \frac{1}{2} (2 \times 7) \sin 25^\circ$$

$$K = 2.96$$

$$3. a=8, b=9, c=12$$

$$\text{1st } S = \frac{1}{2} (a+b+c)$$

$$= \frac{1}{2} (8+9+12)$$

$$= \frac{1}{2} (29)$$

$$S = 14.5$$

2nd

$$K = \sqrt{S(S-a)(S-b)(S-c)}$$

$$= \sqrt{14.5(14.5-8)(14.5-9)(14.5-12)}$$

$$= 36$$

$$4. A=30^\circ, a=8, c=7$$

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

$$\frac{\sin C}{7} = \frac{\sin 30^\circ}{8}$$

$$\sin C = \frac{7 \sin 30^\circ}{8}$$

$$\sin^{-1} \sin C = \sin^{-1} \left(\frac{7 \sin 30^\circ}{8} \right)$$

$$C = 25.94^\circ$$

Approx

$$B = 180^\circ - A - C$$

$$B = 180^\circ - 30^\circ - C$$

$$B = 124.06^\circ$$

OK

$$K = \frac{1}{2} ac \sin B$$

$$K = \frac{1}{2} (8 \times 7) \sin B$$

$$K = 23.2$$