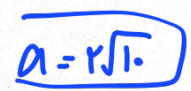


5

1,0



1

$$\frac{(b+c)^2 - a^2}{bc(\cos A + 1)} = \frac{b^2 + c^2 + 2bc - a^2 - b^2 + 2bc \cos A}{bc(\cos A + 1)} = \frac{2bc(\cos A + 1)}{bc(\cos A + 1)} = \boxed{2}$$

(2)

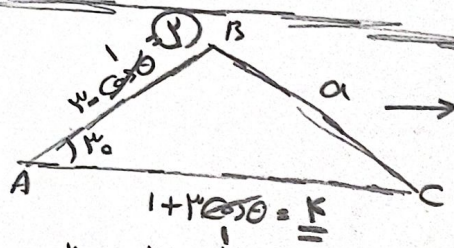
4

$$\frac{a^2 + b^2 - c^2}{a + b - c} = a^2 \rightarrow a^2 + b^2 - c^2 = a^2(a + b - c) = a^2 + a^2(b - c) \rightarrow b^2 - c^2 = a^2(b - c)$$

$$(b - c)(b^2 + c^2 + bc) = a^2(b - c)$$

$$\cos A = -\frac{1}{2} \rightarrow A = 120^\circ$$

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



10

$$S_{ABC} = r \rightarrow (r - \cos \theta)(1 + r \cos \theta) \times \frac{1}{r} \times \frac{1}{r} \times r = r$$

$$r + r \cos \theta - \cos \theta - r \cos^2 \theta = 1$$

$$r \cos \theta - \cos \theta + 1 = 0$$

$$(r \cos \theta - 1)(\cos \theta - 1) = 0$$

$$\frac{r}{1} = 1 \rightarrow r = 1$$

نیز می توانیم

(2)