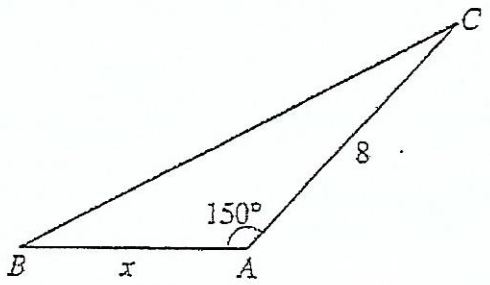
57. The diagram below shows the triangle ABC with $AB = x$ cm, $AC = 8$ cm and $B\hat{A}C = 150°$.



Given that the area of the triangle ABC is 10 cm^2,

(a) find x, [3]

(b) calculate the length of the longest side of the triangle ABC, giving your answer correct to two decimal places. [3]

June 2006

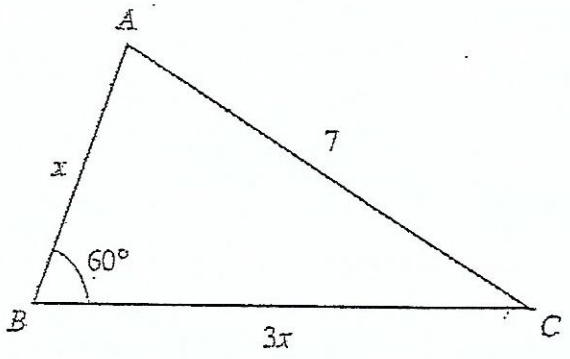
58. The triangle ABC is such that $AB = 6$ cm, $AC = 10$ cm and $B\hat{A}C$ is an obtuse angle. The area of triangle ABC is $15\sqrt{3}$ cm^2.

(a) Find the size of $B\hat{A}C$. [3]

(b) Calculate the length of BC. [3]

Jan 2007

59. The diagram below shows the triangle ABC with $AB = x$ cm, $BC = 3x$ cm, $AC = 7$ cm and $A\hat{B}C = 60°$.



(a) Show that $x = \sqrt{7}$. [3]

(b) Find $A\hat{C}B$. [2]

June 2007

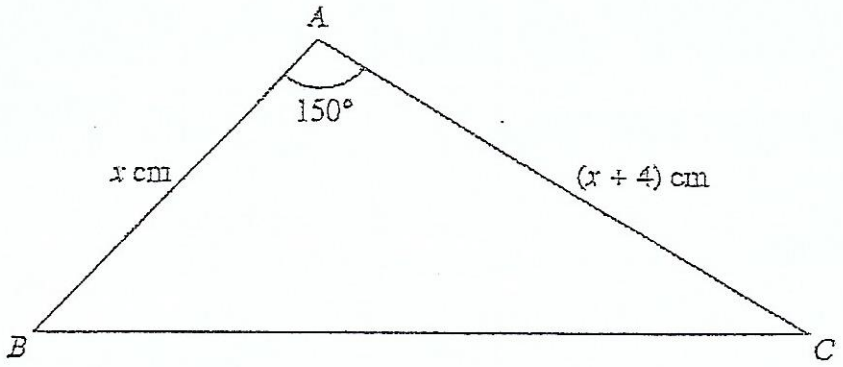
60. In triangle ABC, $AB = 6$ cm, $BC = 13$ cm and $CA = 9$ cm.

(a) Find the value of $\cos \hat{BAC}$ as a fraction in its lowest terms. [3]

(b) Show that the area of triangle ABC is $4\sqrt{35}\,\text{cm}^2$. [3]

Jan 2008

61. The diagram below shows the triangle ABC with $AB = x$ cm, $AC = (x + 4)$ cm and $\hat{BAC} = 150°$.



Given that the area of the triangle ABC is $15\,\text{cm}^2$,

(a) find the value of x, [3]

(b) find the length of BC correct to one decimal place. [2]

June 2008