

Marks are indicated in brackets after each question number

2014 Paper 2 Question 6, (4)

Since Lowtown is due west of Midtown then Hightown can only be directly north of Lowtown if the triangle is right-angled.

Let H = Hightown, L = Lowtown, M= Midtown

$$\text{Then } (LH)^2 + (LM)^2 = 85^2 + 75^2 = 12,850$$

$$(HM)^2 = 110^2 = 12,100$$

Since $(LH)^2 + (LM)^2 \neq (HM)^2$ the triangle is not right-angled

Therefore, Hightown is not directly north of Lowtown

2017 Paper 2 Question 7, (3)

The hypotenuse of the larger triangle is 22 cm

The short sides have length 8 cm and 19 cm

$$8^2 + 19^2 = 425$$

$$22^2 = 484$$

Since $425 \neq 484$ the triangle is not right angled by the converse of Pythagoras