# **SOLUTION TO QUESTION 3**

To find the point on the x-axis such that the sum of its distances from the points (−6,5) and (6,11) is minimal.

Consider the symmetric point of (−6,5) with respect to the axis, that is, (−6, −5).

The line through (−6, −5) and (6,11) has equation  and it intersects the *x*-axis at

The minimum value is therefore:

Therefore, the minimum value of *y* is **20.**

Alternatively, using graphical illustration

By the diagram, the minimum value of *y* is the length

Proof: Let A = (−6,5), B = (6,11) and D is a moving point on x-axis whose total distance from A and B is:

By the triangle inequality, y = AD+DC=BD+DC ≥ BC, hence the minimum value of y is BC = **20**

Note: It attains its minimum at the x-intercept of the line joining BC.