

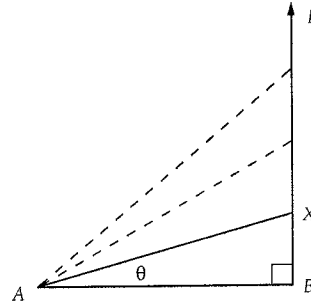
14:03 | The Range of Values of the Trig Ratios

Name: _____ Class: _____

Exercise

In the diagram shown:

- $\angle ABE$ is a right angle
- X is any position on the ray BE
- $\angle XAB = \theta$.



- 1 As X moves along the ray BE , away from B , what happens to the:
 - a size of $\angle BAX$?
 - b length of BX ?
 - c length of AB ?
 - d value of the ratio $\frac{BX}{AB}$?
 - e size of $\tan \theta$?
- 2 Considering the above:
 - a What is the smallest value of $\tan \theta$ possible?
 - b What happens to $\tan \theta$ as θ moves from 0° towards 90° ?
- 3
 - a What happens to AX as θ moves from 0° towards 90° ?
 - b What happens to $\frac{AB}{AX}$ as θ moves from 0° towards 90° ?
 - c What are the smallest and largest possible values of $\cos \theta$?
- 4
 - a Do BX and AX get closer in value as θ moves from 0° towards 90° ?
 - b Why is AX always bigger than BX ?
 - c What happens to $\frac{BX}{AX}$ as θ moves from 0° towards 90° ?
 - d What are the smallest and largest possible values of $\sin \theta$?

14:03 The Range of Values of the Trig Ratios

- 1 a It approaches 90° b It increases. c It stays constant. d It increases.
e It increases from 0 to infinity.
- 2 a 0 b It increases from 0 to infinity.
- 3 a It continuously increases in length. b It goes from 1 to 0. c 0 and 1
- 4 a Yes b Because it is the hypotenuse of the right-angled triangle ABX
c It goes from 0 to 1. d 0 and 1