Let Us Fly Off On a Tangent:

What is a tangent?

As an Idiom:

To *fly off on a tangent*, idiomatically, is to digress so radically, such that the topic that one now speaks of is only related to the previous topic – prior to the digression – by having only the point that spurred the tangent in common.

As a mathematical term:

In mathematics, a 'tangent' is a line that only has a single point in common with the circumference of a circle.

The tangent line *touches*[1] the circle's circumference at a single point, and is perpendicular to the radius of the circle.

The angles that the tangent makes with the radius are right, i.e. of magnitude 90°.

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[1] The Latin participle, 'tangēns, tangent-, ' means 'touching.' Therefore, etymologically, a *tangent line* is only *touching* a circle's circumference at a single point. The Latin 3rd-conjugation verb, 'tangō, tangere, tetigī, tāctum,' means 'to touch.' We also derive the adjectives 'tangible' and 'tactile' – both of which concern 'touching' – from this Latin verb as well.
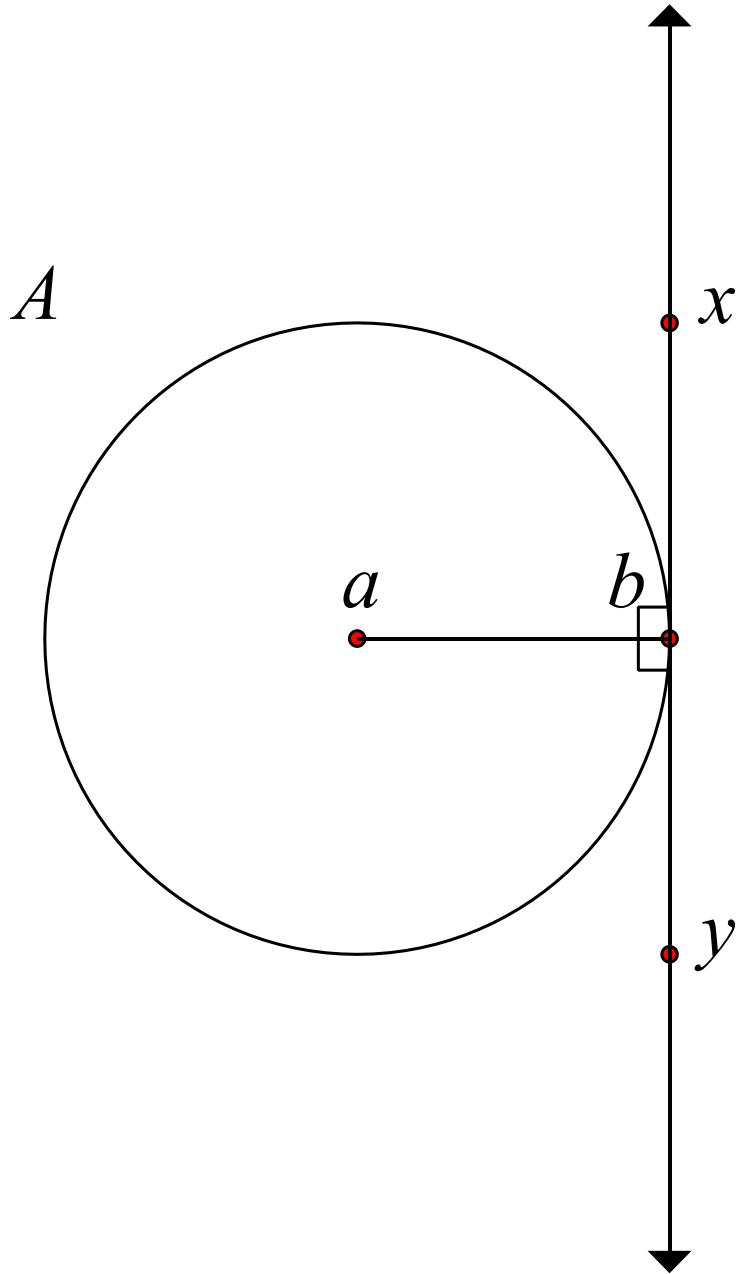
Figure 1: A diagram of a tangent line.

In the circle:

$$A$$

, the centre is at point:

$$a$$

. The radius of the circle is line segment:

$$|ab|$$

. The tangent line is:

$$|xy|$$

. The tangent line:

$$|xy|$$

, only touches the circle:

$$A$$

, at a single point, and that point is point:

$$b$$

. The tangent:

$$|xy|$$

is perpendicular to the radius:

$$|ab|$$

. The angle:

$$\angle xba$$

is a right angle.

. The angle:

$$\angle yba$$

is a right angle.

<u>Addendum:</u>

You may take a look at the SVG code with which I scripted the diagram of a tangent at my [Codepen](#) account.