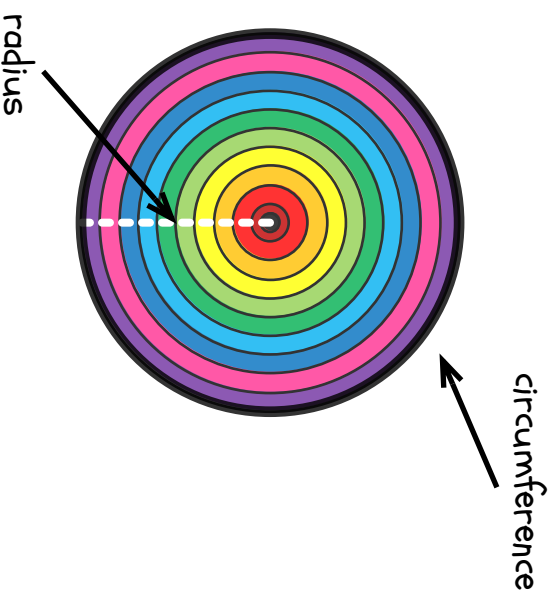
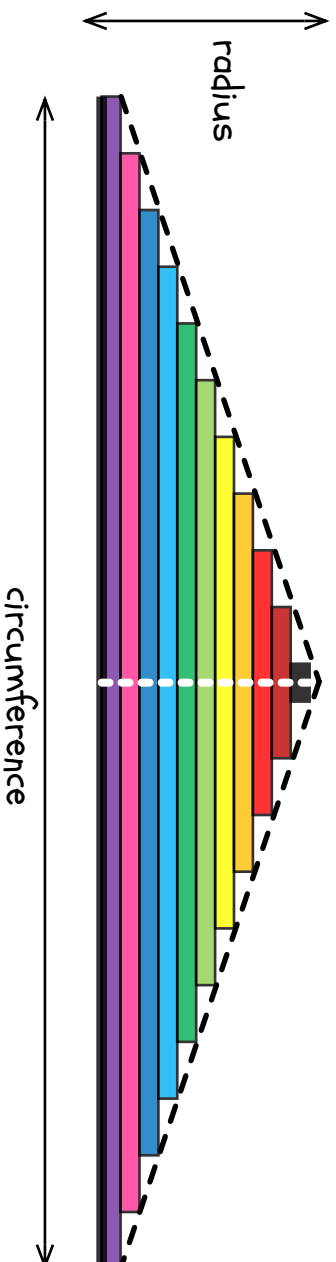


Area of a Circle

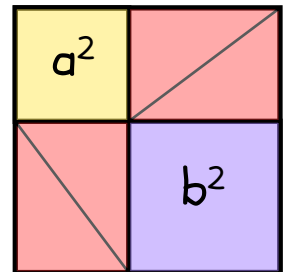
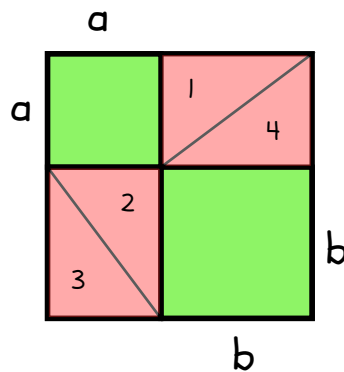
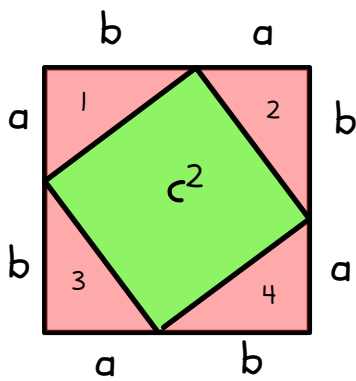
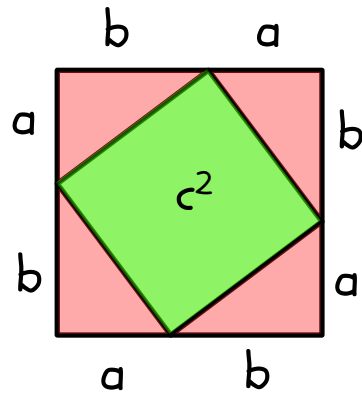
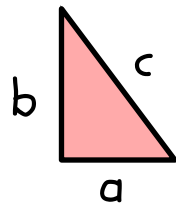


$$\begin{aligned}\text{circumference} &= \pi \times \text{diameter} \\ \text{circumference} &= \pi \times 2 \times \text{radius} \\ \text{circumference} &= 2\pi \times \text{radius}\end{aligned}$$

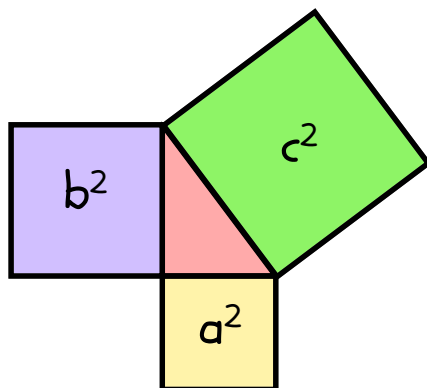


$$\begin{aligned}\text{Area} &= \frac{1}{2} \times \text{base} \times \text{height} \\ \text{Area} &= \frac{1}{2} \times \text{circumference} \times \text{radius} \\ \text{Area} &= \frac{1}{2} \times 2\pi \times \text{radius} \times \text{radius} \\ \text{Area} &= \pi \times \text{radius} \times \text{radius} \\ \text{Area} &= \pi \times \text{radius}^2\end{aligned}$$

Pythagoras' Theorem

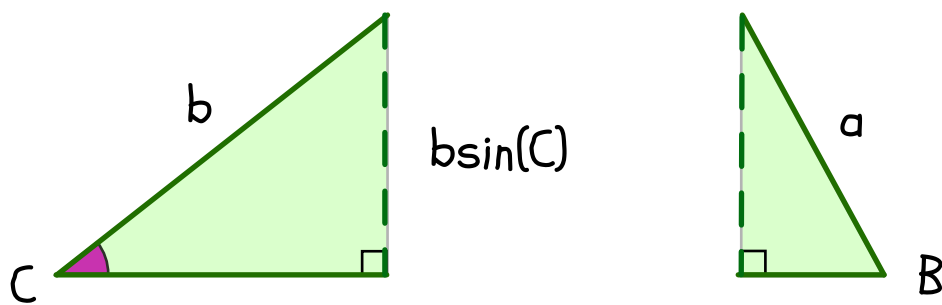
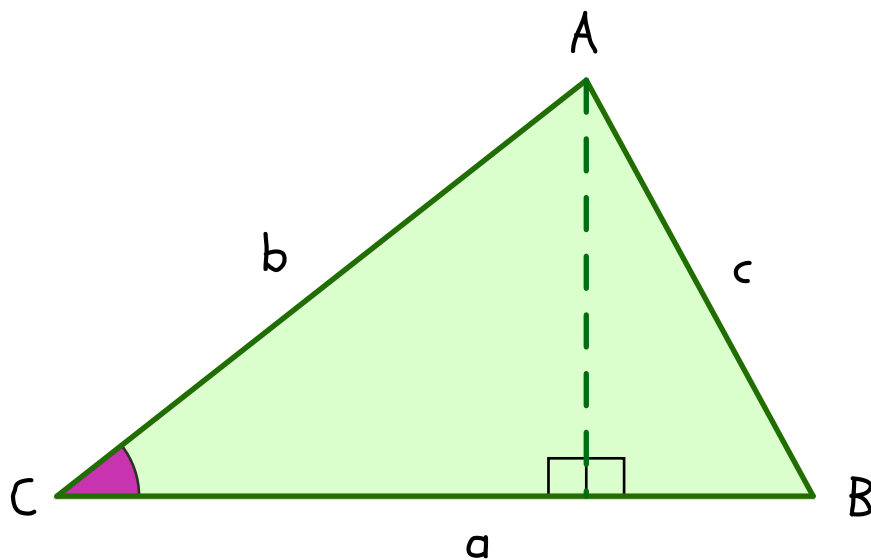


$$c^2 = a^2 + b^2$$



$$c^2 = a^2 + b^2$$

Area of a Triangle

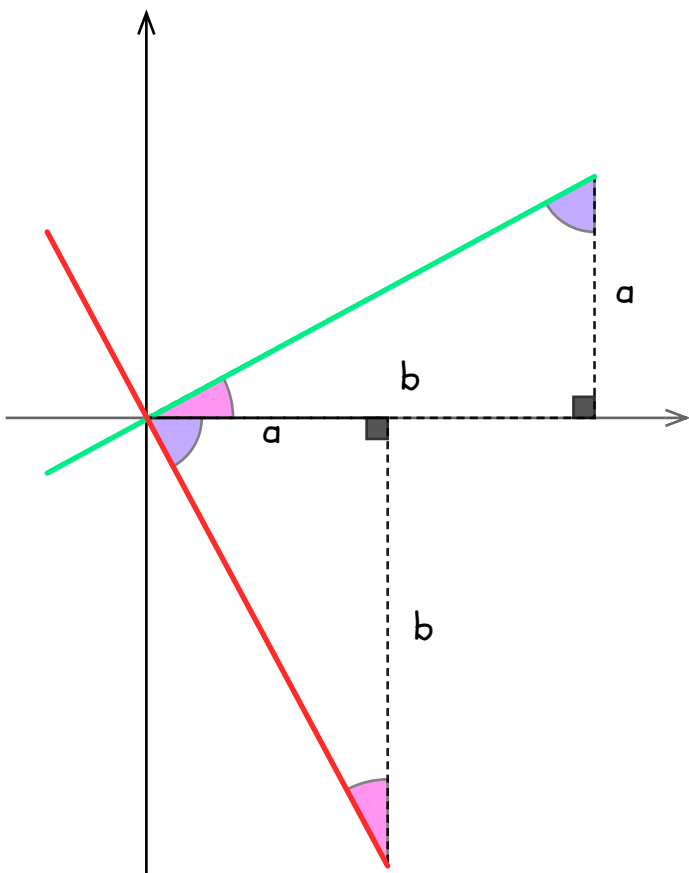
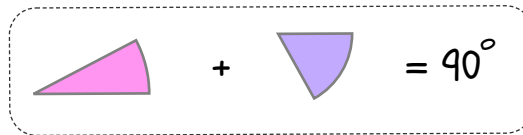
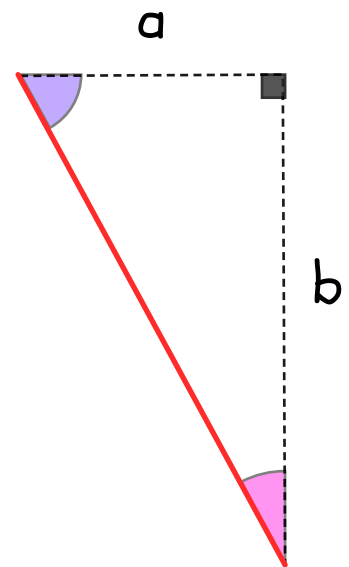
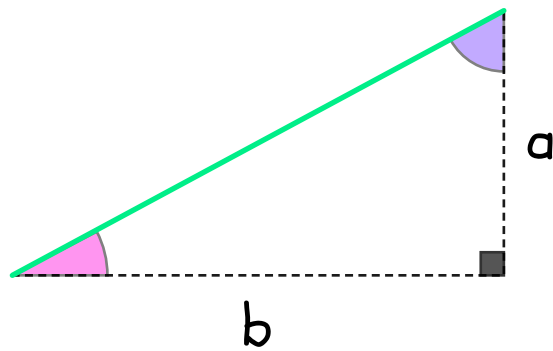


$$\text{area} = \frac{1}{2} \times \text{base} \times \text{height}$$

$$\text{area} = \frac{1}{2} \times a \times b \sin(C)$$

$$\text{area} = \frac{1}{2} \times ab \sin(C)$$

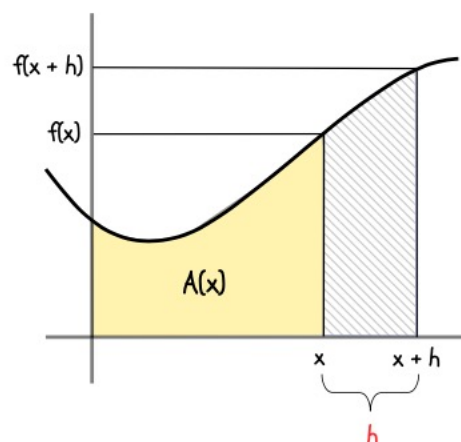
Relationship Between Perpendicular Slopes



$$\text{green gradient} = \frac{a}{b}$$

$$\text{red gradient} = -\frac{b}{a}$$

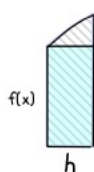
Area Under a Curve



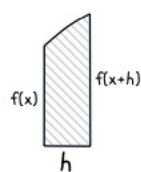
$$A(x+h) = \text{[Diagram of area under curve from } x+h \text{ to } x+2h \text{ shaded with diagonal lines]}$$

$$A(x) = \text{[Diagram of area under curve from } x \text{ to } x+h \text{ shaded yellow]}$$

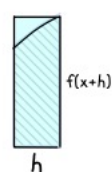
$$A(x+h) - A(x) = \text{[Diagram of the difference in area, a small rectangle with diagonal lines, representing the area under the curve from } x \text{ to } x+h \text{ shaded with diagonal lines}]$$



<



<



$$f(x) \cdot h$$

<

$$A(x+h) - A(x)$$

<

$$f(x+h) \cdot h$$

$$f(x)$$

<

$$\frac{A(x+h) - A(x)}{h}$$

<

$$f(x+h)$$

$$\lim_{h \rightarrow 0} f(x)$$

<

$$\lim_{h \rightarrow 0} \frac{A(x+h) - A(x)}{h}$$

<

$$\lim_{h \rightarrow 0} f(x+h)$$

$$f(x)$$

<

$$A'(x)$$

<

$$f(x)$$

$$A'(x)$$

=

$$f(x)$$

$$\int A'(x) dx$$

=

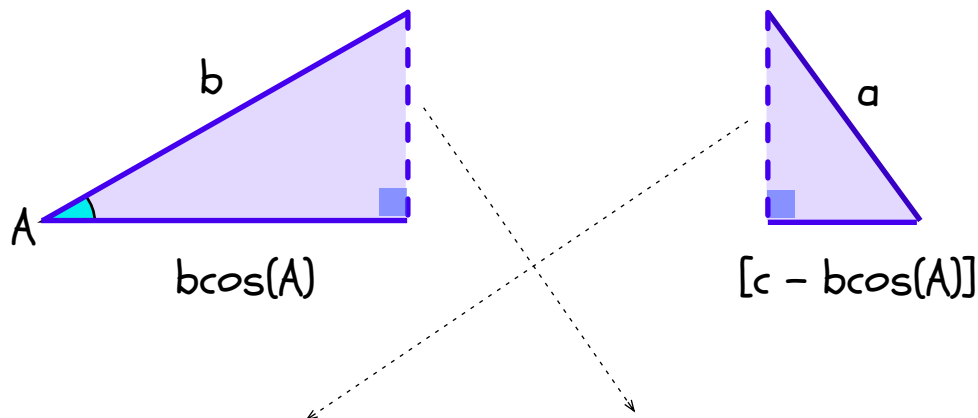
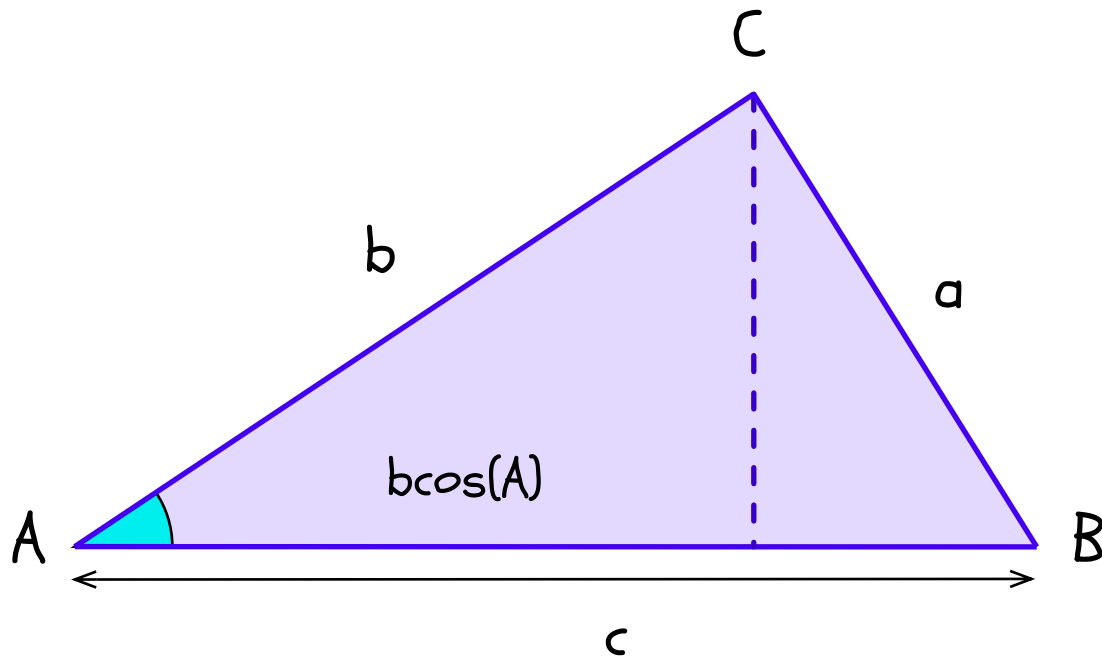
$$\int f(x) dx$$

$$A(x)$$

=

$$\int f(x) dx$$

Cosine Rule

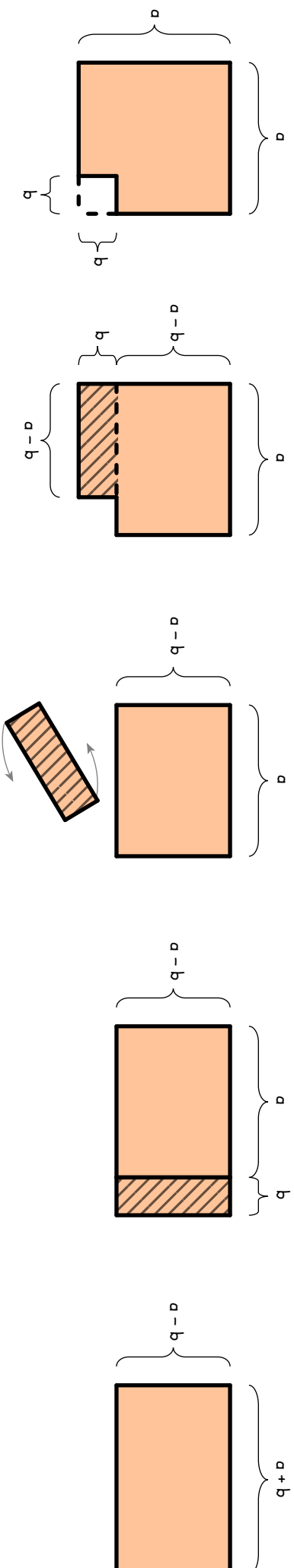
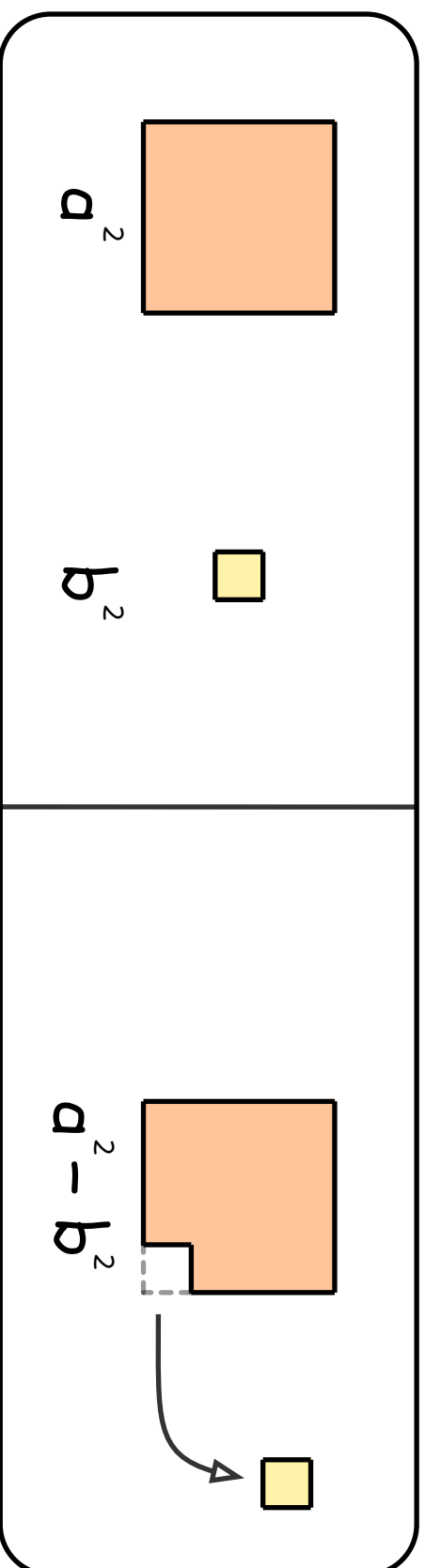


$$a^2 - (c - b\cos(A))^2 = b^2 - [b\cos(A)]^2$$

$$a^2 - c^2 + 2bccos(A) - [b\cos(A)]^2 = b^2 - [b\cos(A)]^2$$

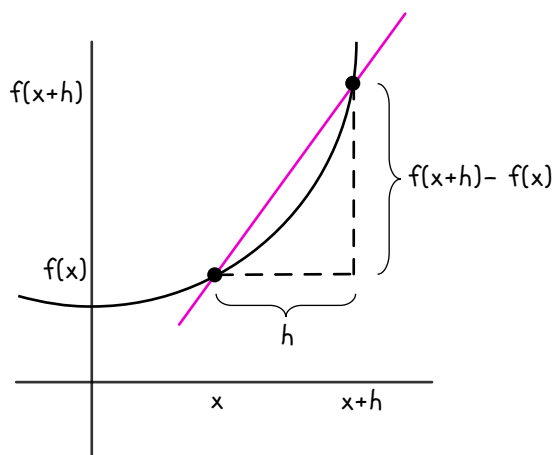
$$\therefore a^2 = b^2 + c^2 - 2bccos(A)$$

Difference of Two Squared Terms

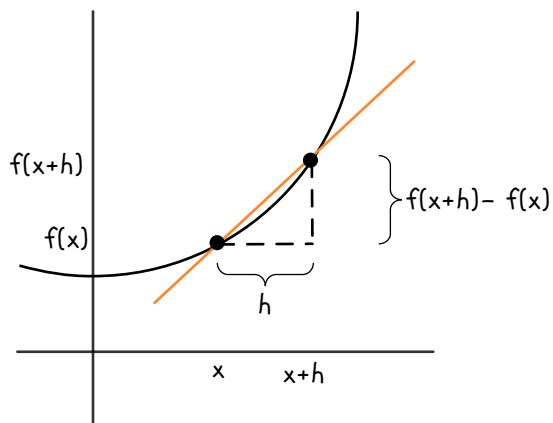


$$a^2 - b^2 = (a + b)(a - b)$$

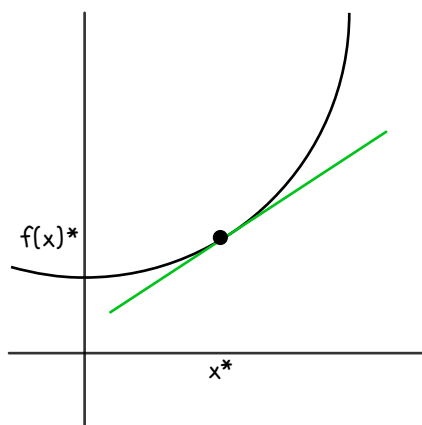
Gradient of a Tangent Line to a Curve



$$f'(x) = \frac{f(x+h) - f(x)}{h}$$



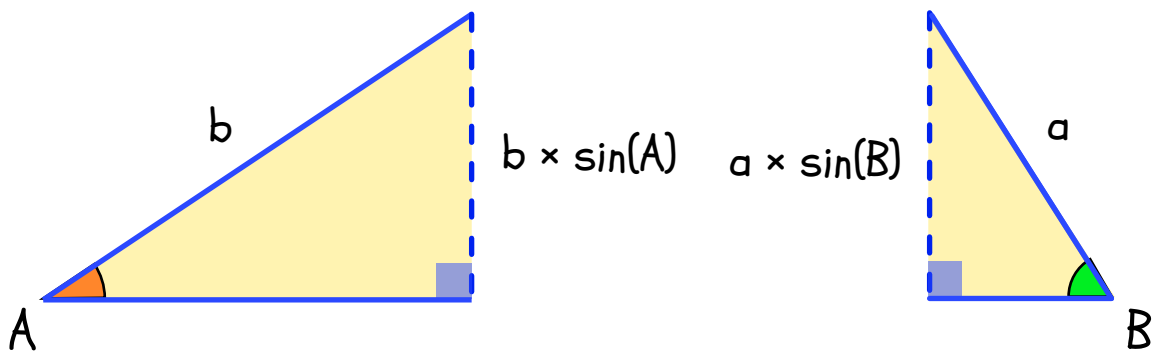
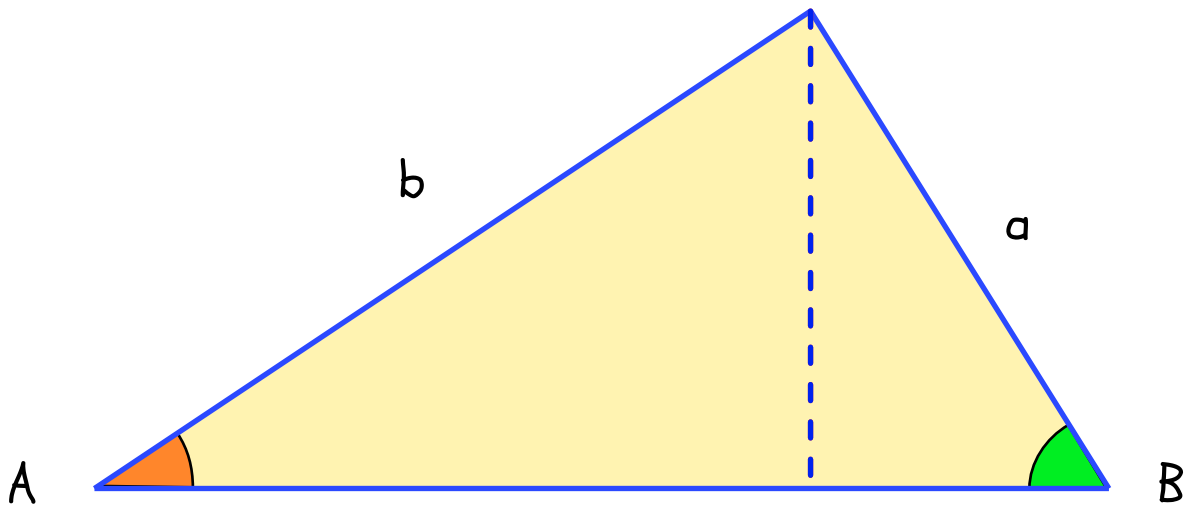
$$f'(x) = \frac{f(x+h) - f(x)}{h}$$



$$f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$$

* h is far too small to see on this graph!

Sine Rule



$$b \times \sin(A) = a \times \sin(B)$$

$$\frac{\sin(A)}{\sin(B)} = \frac{a}{b}$$