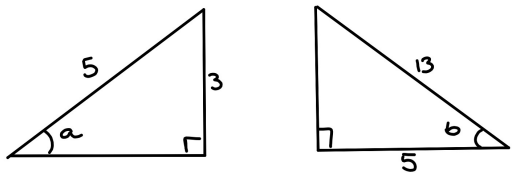
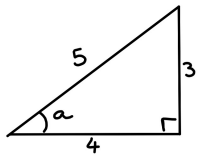
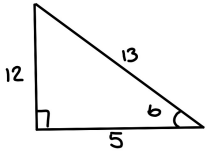
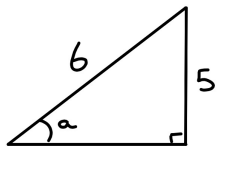
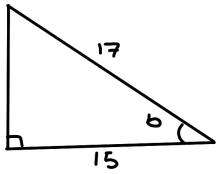
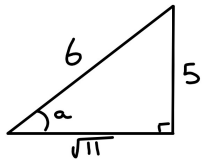
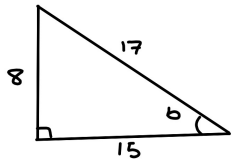
Using the Addition Formulae – Worksheet

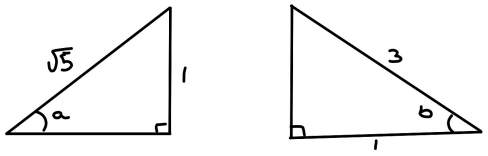
Find the exact value of cos(a + b), if sina = $\frac{3}{5}$ and cosb = $\frac{5}{13}$

Expand given addition formula	$\cos a \cos b - \sin a \sin b$
Draw Right Angled Triangles from given fractions	
Using Pythagoras, calculate missing sides of triangles	$\sqrt{5^2 - 3^2}$ $= \sqrt{16} = 4$  $\sqrt{13^2 - 5^2}$ $= \sqrt{144} = 12$ 
State Values of trig. Ratios	$\sin a = \frac{3}{5}$ $\cos a = \frac{4}{5}$ $\sin b = \frac{12}{13}$ $\cos b = \frac{5}{13}$
Substitute into expanded formula and simplify	$\frac{4}{5} \times \frac{5}{13} - \frac{3}{5} \times \frac{12}{13}$ $= \frac{20}{65} - \frac{36}{65}$ $= -\frac{16}{35}$

Find the exact value of sin(a + b), if sina = $\frac{5}{6}$ and cosb = $\frac{15}{17}$

Expand given addition formula	$\sin a \cos b + \cos a \sin b$
Draw Right Angled Triangles from given fractions	 
Using Pythagoras, calculate missing sides of triangles	$\sqrt{6^2 - 5^2}$ $= \sqrt{11}$  $\sqrt{17^2 - 15^2}$ $= \sqrt{64} = 8$ 
State Values of trig. Ratios	$\sin a = \frac{5}{6}$ $\cos a =$ $\sin b =$ $\cos b = \frac{15}{17}$
Substitute into expanded formula and simplify	$\frac{5}{6} \times \frac{15}{17} +$

Find the exact value of sin(a - b), if sina = $\frac{1}{\sqrt{5}}$ and cosb = $\frac{1}{3}$

Expand given addition formula	$\sin a \cos b - \cos a \sin b$
Draw Right Angled Triangles from given fractions	
Using Pythagoras, calculate missing sides of triangles	$\sqrt{\sqrt{5}^2 - 1^2}$ $= \sqrt{4} = 2$ $\sqrt{3^2 - 1^2}$ =
State Values of trig. Ratios	
Substitute into expanded formula and simplify	

Find the exact value of cos(a - b), if sina = $\frac{2}{\sqrt{13}}$ and cosb = $\frac{4}{5}$

Expand given addition formula	
Draw Right Angled Triangles from given fractions	
Using Pythagoras, calculate missing sides of triangles	
State Values of trig. Ratios	
Substitute into expanded formula and simplify	