

Trig 4

- (a) A and B are acute angles such that $\tan A = \frac{5}{12}$ and $\tan B = \frac{3}{4}$.
Find $\cos(A - B)$ as a fraction.

(b) (i) Show that $\frac{\sin 2A}{1 + \cos 2A} = \tan A$.

(ii) Hence, or otherwise, prove that $\tan 22\frac{1}{2}^\circ = \sqrt{2} - 1$.

- (c) a , b and c are the centres of circles K_1 , K_2 and K_3 respectively.
The three circles touch externally and $ab \perp ac$.
 K_2 and K_3 each have radius $2\sqrt{2}$ cm.

- (i) Find, in surd form, the length of the radius of K_1 .
(ii) Find the area of the shaded region in terms of π .

