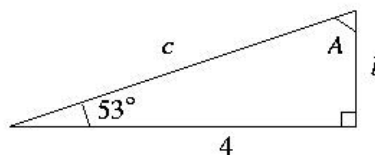
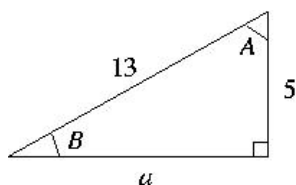


CM 1021 Mathematical Methods for Computing I
Exercise Sheet 2

- Convert the following angles
 - from radians to degrees: $\pi/4$, 3π , $-5\pi/2$, 1.36, 2.45
 - from degrees to radians: 90° , 135° , 315°
- A pizza has radius 20cm. A slice is cut from the pizza with an angle of 48° at the point. What is the area of the slice?
- Calculate angles A and B , and side a in the left-hand figure, and angle A and sides b and c in the right-hand figure. Both are right-angled triangles.



- Expand (a) $\sin(x + \pi/6)$ (b) $\tan(x + \pi/4)$ (c) $\cos(x - \pi/3)$
- Without using a calculator find the exact value of (a) $\cos(15^\circ)$ (b) $\sin(22\frac{1}{2}^\circ)$ (c) $\tan(75^\circ)$
- Solve the following triangles using the sine or cosine rules as appropriate, giving your answers to 2 d.p.s and expressing angles in degrees
 - $a = 7, b = 6, c = 9$
 - $A = 25^\circ, b = 27, c = 32$
 - $A = 74^\circ, B = 10^\circ, c = 14$
- Find the period of (a) $\cos 5x$, (b) $\sin 6x$, (c) $\cos(3x - 2)$
- What is the distance between the points whose coordinates are $(4, 11, -5)$ and $(7, -3, -1)$

More Challenging Questions:

- Find $\sin 3x$ in terms of $\sin x$
- If $\tan \frac{x}{2} = t$, find expressions for $\sin x$, $\cos x$ and $\tan x$ in terms of t .