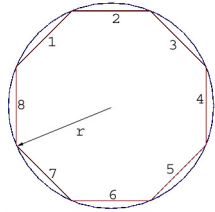


MATH 3321 HOMEWORK 1

Solve the following problems. Show your steps. Partial credit may be given in the case your final answer is wrong if you show your steps. You may use a calculator.

- (1) (10 pts) Find the following values:
 - (i) $\sin 30^\circ$
 - (ii) $\cos 120^\circ$
- (2) (10 pts) Convert the following angles from degrees to radians:
 - (i) 60°
 - (ii) 270°
- (3) (20 pts) Convert the following angles from radians to degrees:
 - (i) $\frac{2\pi}{3}$
 - (ii) $\frac{\pi}{6}$
 - (iii) $-\frac{5\pi}{4}$
 - (iv) 1
- (4) (40 pts) A regular polygon (with all equal sides) of n sides inscribes a circle or radius r . Find out the perimeter and the area of the polygon when $r = 1$ and
 - (i) (5 pts) $n = 3$
 - (ii) (5 pts) $n = 4$
 - (iii) (5 pts) $n = 5$
 - (iv) (5 pts) $n = 6$
 - (v) (5 pts) $n = 8$
 - (vi) (5 pts) $n = 10$
 - (vi) (10 pts) Find the formula for the perimeter and the area, for the general case in term of n and radius r .



- (5) (10 pts) Let $y = 3 \sin(5t)$.
 - (i) What is the period of this function?
 - (ii) What is the frequency of this function?
- (6) (10 pts) Let $\alpha < \frac{\pi}{2}$ and $\beta < \frac{\pi}{2}$ be two angles and we know $\sin \alpha = 0.2$ and $\sin \beta = 0.3$. Find

$$\sin(\alpha + \beta).$$