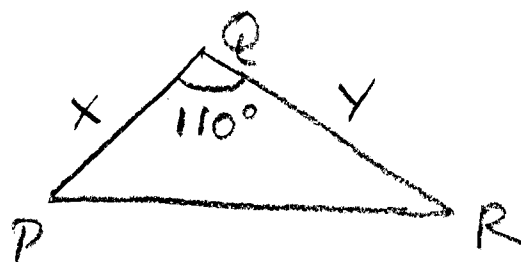
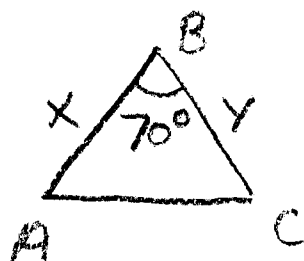
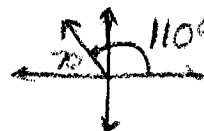


ACT
KAT ① Triangles $\triangle ABC$ and $\triangle PQR$ are shown below. The given side lengths are in centimeters. The area of $\triangle ABC$ is 30 square centimeters. What is the area of $\triangle PQR$, in square centimeters?



- (A) 15 (B) 19 (C) 25 (D) 30 (E) 33

EASY $\Rightarrow \sin 70^\circ = \sin 110^\circ$
(REF. $\angle$ FOR 110)



$$30 \text{ cm}^2 \begin{cases} A_{\triangle ABC} = \frac{1}{2}xy \sin 70 \\ A_{\triangle PQR} = \frac{1}{2}xy \sin 110 \end{cases} \therefore \text{AREAS ARE EQUAL}$$

OR

IF YOU
MISS
REFERENCE
ANGLE

$$30 = \frac{1}{2}xy \sin 70 \therefore xy = \frac{30}{\frac{1}{2} \sin 70} = 63.9$$

$$A_{\triangle PQR} = \frac{1}{2} \overset{xy}{(63.9)} \sin 110^\circ$$

$$\approx \boxed{30.02 \text{ cm}^2}$$

Homework Review: Pg 316 #11, 12, 19, 22

⑪ $B = 70^\circ$ $b = 29.2$ $c = 29.2$
($C = 70^\circ$ given) (isosceles Δ)

⑫ $A = 30^\circ$ $a = 19.6$ $b = 38.6$

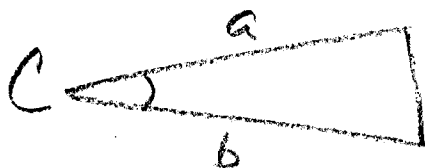
⑬ Area $\Delta = 29.6$ sq. units

⑭ Area $\Delta = 13,533.9$ sq. units

Summary:

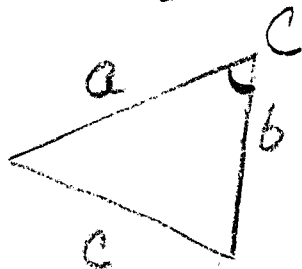
LAW of SINES $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$

Area of $\Delta = \frac{1}{2} ab \sin C$



Ch. 5-8 The Law of Cosines

For any triangle:

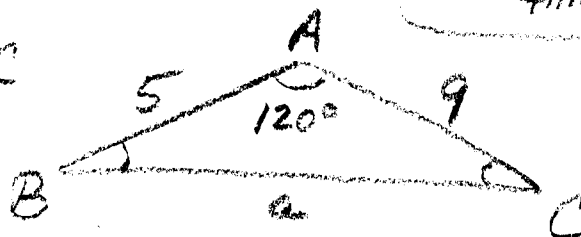


$$c^2 = a^2 + b^2 - 2ab \cos C$$

SAME AS P.T.

SIMILAR TO
APPA FORMULA BUT
WITH COS AND
"times 2"

EX2
pg 328 Find a, B, C



LAW OF COSINES $a^2 = 5^2 + 9^2 - 2(5)(9) \cos 120$

$a^2 = 25 + 81 - \underbrace{(90)(-0.5)}$

$a^2 = 106 + 45$

$a^2 = 151 \therefore a = \sqrt{151} \quad \boxed{a \approx 12.3}$

LAW
OF
SINES

$\frac{\sin 120}{12.3} = \frac{\sin C}{5} \therefore \frac{5(.8660)}{12.3} = \sin C = .352$

$\therefore \sin^{-1}(.352) \approx \boxed{20.6^\circ}$
"C"

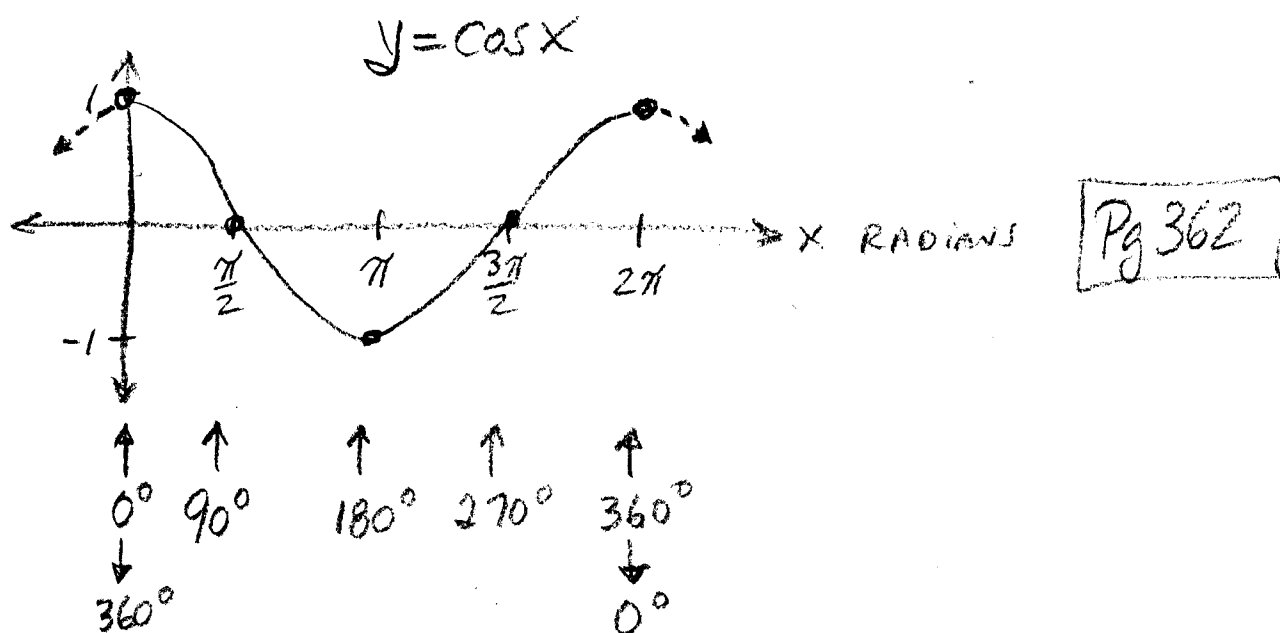
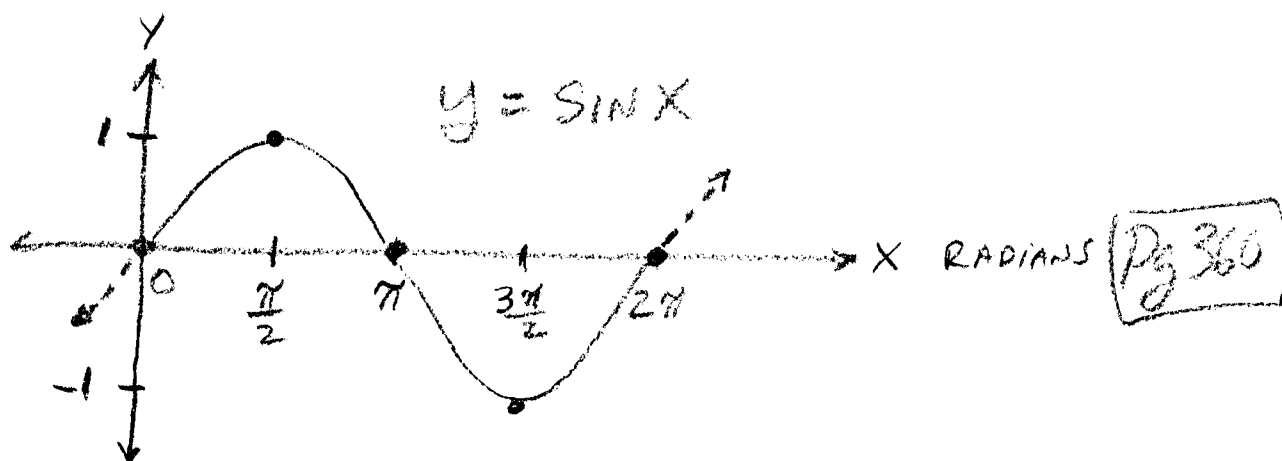
$\therefore B = 180 - 20.6 - 120 = \boxed{39.4^\circ = B}$

Introduction to the graphs of

$$y = \sin x$$

$$y = \cos x$$

Ch. 6-3 Graphing The Sin & Cos Functions



• Homework: Practice ACT Problems!