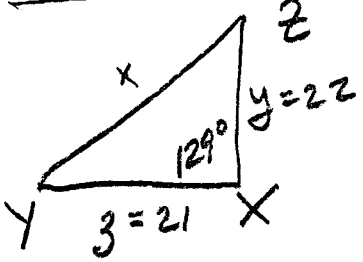
Algebra 2 Tues. 2-26-13 Class Notes

(103) $\triangle XYZ$ $m\angle X = 129°$; $y = 22$, $z = 21$

Find side x Nearest tenth



SAS ⇒ LOC

S | A
T | C

129° ⇒ ref Angle = 51°
cos (−)

$$x^2 = 22^2 + 21^2 - 2(22)(21)(-\cos 51°)$$

$$x^2 = 484 + 441 + 924(.6293)$$

$$x^2 = 925 + 581.473$$

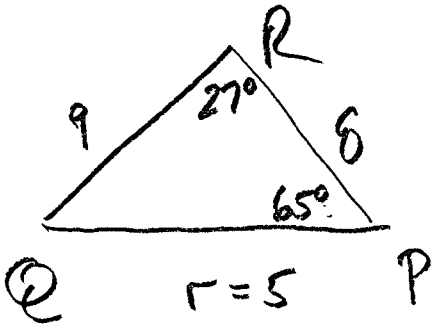
$$x^2 = 1506.47$$

$$x = 38.813$$

$x = 38.8$ units

(107) $\triangle QRP$ $m\angle R = 27^\circ$ $m\angle P = 65^\circ$

$r = 5$, Find p



AAS ⇒ LOS

$$\frac{\sin 27^\circ}{5} = \frac{\sin 65}{p}$$

$$p = \sin 65 \left(\frac{5}{\sin 27}\right)$$

$$p = (.9063)\left(\frac{5}{.4540}\right)$$

$$p = 9.981$$

$$\boxed{p = 10.0 \text{ units}}$$

(102) geometric mean $-2, -, 72, -$

$$\sqrt{2 \cdot 72} = \sqrt{144} = \boxed{12}$$

EVALUATE EACH ARITHMETIC SERIES

(61) $a_1 = 0 \quad a_N = 42 \quad N = 15$

$$S_N = \frac{N}{2}(a_1 + a_N)$$

$$= \frac{15}{2}(0 + 42)$$

$$= 15 \cdot 21$$

$$\boxed{S_N = 315}$$

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(57) $a_{18} = -370, \; a_{40} = -810$ FIND a_{29}

$$a_N = a_1 + (N-1)d$$

FIND d

$$-810 = -370 + (23-1)d$$

$$\frac{-440}{22} = \frac{22d}{22} \qquad \boxed{d = -20}$$

FIND a_1

$$-370 = a_1 + (17)(-20)$$

$$+340 \qquad +340$$

$$\boxed{-30 = a_1}$$

FIND a_{29}

$$\boxed{a_{29} = -30 + (28)(-20) = -590}$$

Geometric Sequence

(81) Find r and term named

$a_4 = 81 \quad a_1 = 3 \quad$ Find a_{10}

$$a_N = a_1 r^{N-1}$$

Find r

$$81 = 3r^{4-1}$$

$$\frac{81}{3} = \frac{3r^3}{3}$$

$$27 = r^3$$

$$3 = r$$

Find a_{10}

$$a_{10} = 3(3)^9$$

$$a_{10} = 3(19683)$$

$$\boxed{a_{10} = 59049}$$

(42) Eq of circle: $\boxed{(x-h)^2+(y-k)^2=r^2}$

Ends of dia are $(-11, 12), (7, 6)$

$$\text{Mid} = \text{Center} = \left(\frac{-11+7}{2}, \frac{12+6}{2}\right)$$

$$C(-2, 9)$$
$$h, k$$

$$d^2 = (9+2)^2 + (6-9)^2$$
$$\text{run}^2$$

$$\downarrow$$

$$r^2 = 81 + 9$$

$$r^2 = 90$$

$$\boxed{(x+2)^2+(y-9)^2=90}$$