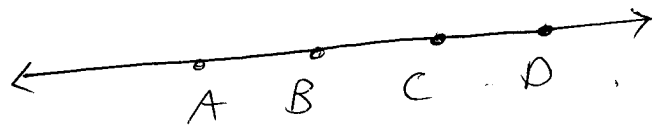
Math 100:11 Assignment 3 (Winter)

9.1 22, 56, 62, 64, 68, 72

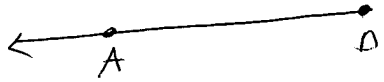
9.2 18, 22, 32

9.3 26, 44, 48, 62, 64, 76

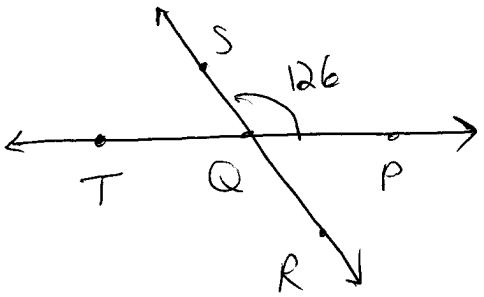
9.1 22 (1)



ray DA $\overrightarrow{DA}$



56. (2)

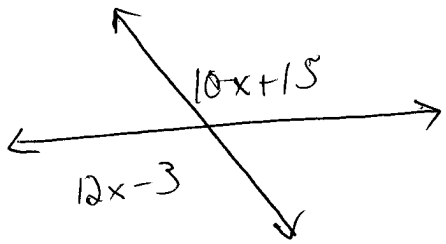


$\measuredangle SQP = 126$

a) $\measuredangle TQR = \measuredangle SQP = 126^\circ$

b) $\measuredangle PQR = 180 - 126 = 54^\circ$

62. (2)



$10x + 15 = 12x - 3$

$\rightarrow 15 + 3 = 12x - 10x$

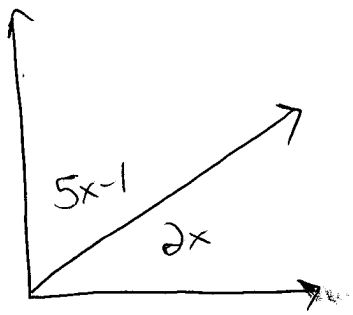
$18 = 2x$

$x = \frac{18}{2} = 9$

so $10x + 15 = 90 + 15 = 105$

each angle is 105

64. (2)



$5x - 1 + 2x = 7x - 1 = 90$

$\rightarrow 7x = 91$

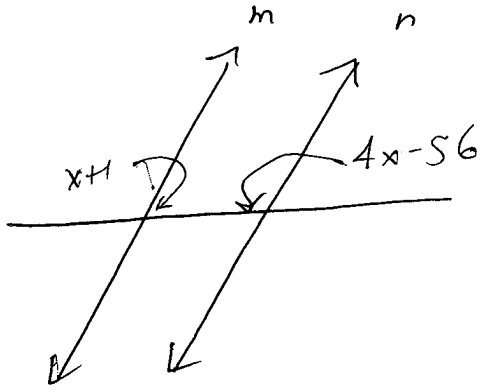
$x = \frac{91}{7} = 13$

so $2x = 2(13) = 26$

$5x - 1 = 5(13) - 1 = 64$

$(26 + 64 = 90)$.

68



$(x+1)+(4x-56)=180$

$5x-55=180 \rightarrow 5x=180+55=235$

$x=\frac{235}{5}=47$ /2

so $x+1=48$ $\quad 4x-56=4(47)-56=132$

72 The supplement of an angle added to the complement of the angle gives 210°. What is the measure of the angle?

Let x = unknown angle /2

Supp = $180-x$

Comp = $90-x$

so $(180-x)+(90-x)=210$

$\rightarrow 270-2x=210 \rightarrow 270-210=2x \rightarrow 60=2x$

$\rightarrow \boxed{x=30}$

The angle is 30°

9.2 18, 22, 32 because it crosses itself

18. (not simple) + closed /1

22 not convex -

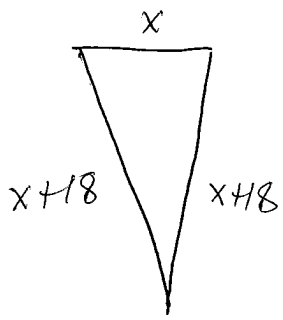
Can find 2 pts where line segment between points goes outside curve

32. 

obtuse + isosceles

9.3 26, 44, 48, 62, 64, 76

26



Let x = third side

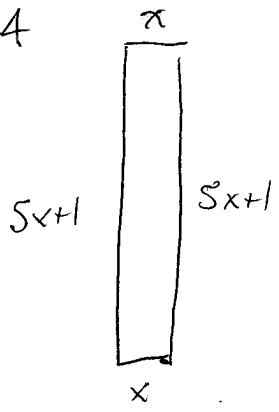
So equal sides are $x+18$

$x + x+18 + x+18 = 3x + 36 = 54$

$3x = 54 - 36 = 18 \rightarrow x = \frac{18}{3} = 6$

So lengths are 6, 24, 24

44



$P = 278 \rightarrow 2(x) + 2(5x+1) = 278$

$2x + 10x + 2 = 278$

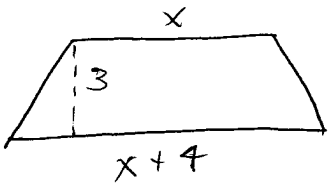
$12x + 2 = 278$

$12x = 276$

$x = \frac{276}{12} = 23$

So sides are $23 + 5(23)+1 = 116$

48.



$A = 30 = \frac{1}{2}(x+4+x)(3)$

$= \frac{1}{2}(2x+4)(3)$

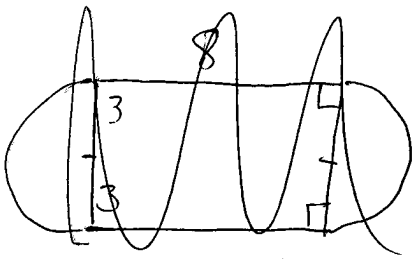
$= (x+2)(3) = 3x + 6 = 30$

$\rightarrow 3x = 30 - 6 = 24$

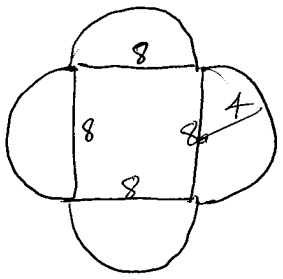
$x = \frac{24}{3} = 8$

so $\boxed{x = 8}$

62.



oops!



total area

square + 4 $\frac{1}{2}$ circles

$A = (8 \times 8) + 2\pi r^2$

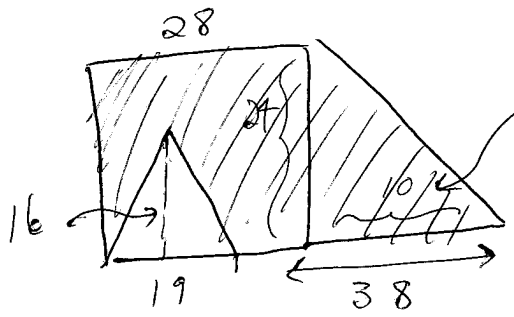
$= 64 + 2\pi(4)^2$

$= \boxed{64 + 32\pi}$

28 28 224 560 784 (4)

19 8 152

64.

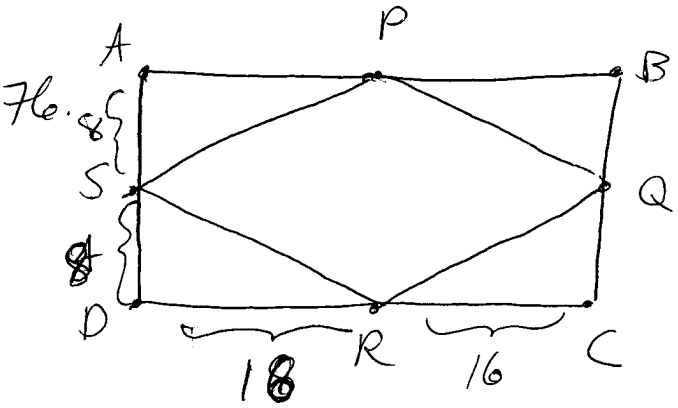


784 120 904 −152 752

Area = area of square + big Δ − little Δ

$= (28)^2 + \frac{1}{2}(24)(10) - \frac{1}{2}(16)(19)$

$= 784 + 120 - 152 = 752$



AB has twice length of BC

P, Q, R, S are midpoints

perimeter is 96

Let x = width of ABCD, 2x = length

so $x + 2x + x + 2x = 96$

$\rightarrow 6x = 96 \rightarrow x = \frac{96}{6} = 16$

ΔAPS, ΔPBQ, ΔQCR & ΔSRD all have same area $\frac{1}{2}(8)(16) = 64$

So area of PQRS is $(32 \times 16) - 4(64)$

$= 512 - 256 = 256$

32 16 192 320 512

or by symmetry - would be half area

$= \frac{1}{2}(32 \times 16) = 256$