RATIONALS

① $\frac{x+4}{2x+10} \div \frac{x+4}{x+5} = \frac{x+4}{2(x+5)} \cdot \frac{x+5}{x+4} = \boxed{\frac{1}{2}}$

KCF/

FACTOR!

add nom.

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

③ $\frac{x+1}{(x+5)(x-2)} - \frac{3(x+5)}{(x-2)(x+5)}$

$-2(x+7)$

$\frac{x+1-3x-15}{(x+5)(x-2)} = \boxed{\frac{-2x-14}{(x+5)(x-2)}}$

GRAPH. Asymptotes? Hole?

$\frac{x+2}{x^2-x-6}$

HA: $y=0$ ← num. < denom

num. ≥ denom

no HA

num. = denom

$y = \frac{2x-3}{3x-4}$

HA: $y = \frac{2}{3}$

FACTOR!

$\frac{x+2}{(x+2)(x-3)}$ matching factor → Hole at $x+2=0$ $(-2, -\frac{1}{5})$

$\frac{1}{x-3}$ ← → VA: $x=3$ $x-3=0$

CIRCLES

$(x-3)^2+(y+5)^2=64$

center $(3,-5)$

radius $=\sqrt{64}=8$

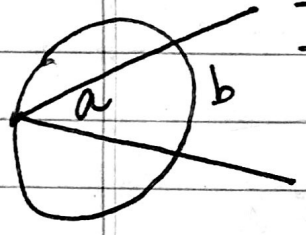
$x^2+y^2+4x-8y=5$

$(x^2+4x+\underline{4})+(y^2-8y+\underline{16})=5+\underline{4}+\underline{16}$

$(\frac{4}{2})^2=4 \qquad (\frac{-8}{2})^2$

$(x+2)^2+(y-4)^2=25$

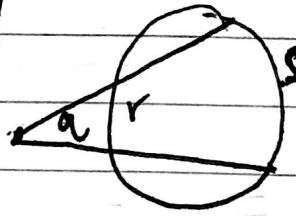
$C(-2,4)\ r=5$



Inscribed ∠

$2a=b$

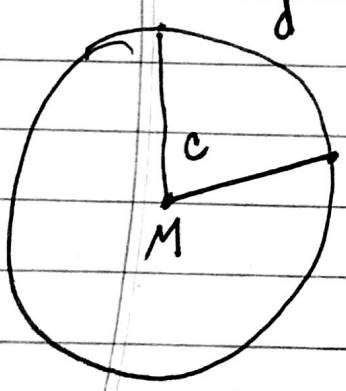
$a=\frac{1}{2}b$



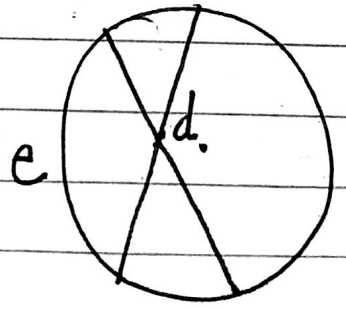
'outsider'

$q=\frac{1}{2}(s-r)$

Central ∠



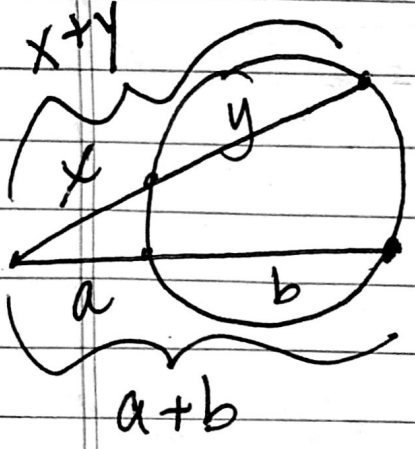
$c=d$



'insider'

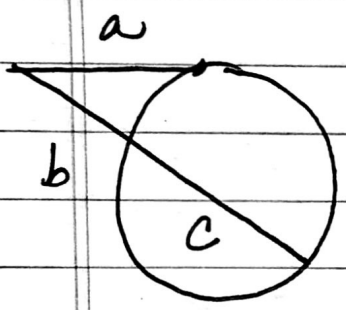
$d=\frac{1}{2}(e+f)$

2 secants



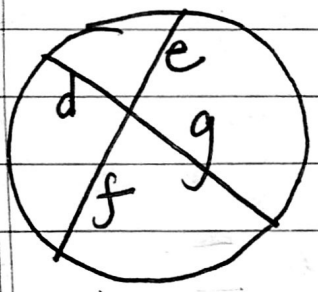
W·E = W·E

$(x+y)(x) = (a+b)a$



W·E = T·T

$(b+c)\,b = a^2$



P·P = P·P

$e \cdot f = d \cdot g$

Pythag. Thm.

$x^2 + y^2 = z^2$

TRIG

Unit Circle (x, y) $(\cos\theta, \sin\theta)$

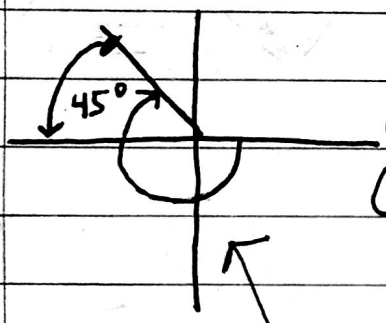
$\tan\theta = \frac{\sin\theta}{\cos\theta} = \frac{y}{x}$

$60^\circ \left(\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$

$\cos 60^\circ = \frac{1}{2}$

$\sin 60^\circ = \frac{\sqrt{3}}{2}$

$\tan 60^\circ = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \frac{\sqrt{3}}{2} \cdot \frac{2}{1} = \sqrt{3}$



ccw → positive

cw → negative

$180 - 45 = -225^\circ$

ref $\measuredangle = 45^\circ$

ACUTE

positive

to the x-axis

coterminal

$\pm 360 / \pm 2\pi$

$120^\circ \cdot \frac{\pi}{180} = \frac{2\pi}{3}$

$\frac{5\pi}{4} \cdot \frac{180}{\pi} = 225^\circ$

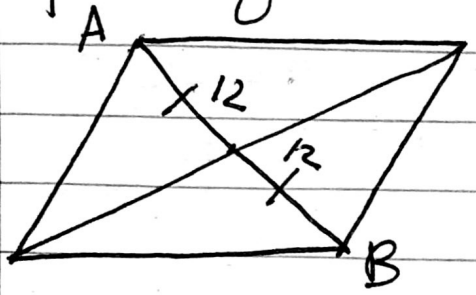
$S = \theta r$ (θ in radians!)

(arc length)

$A = \frac{1}{2} r^2 \theta$

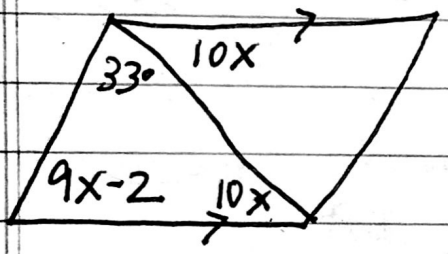
QUADS

parallelogram – diagonals NOT congruent
diag. bisect each other



$AB = 2x - 10$

$2x - 10 = 24$
$2x = 34$
$x = 17$

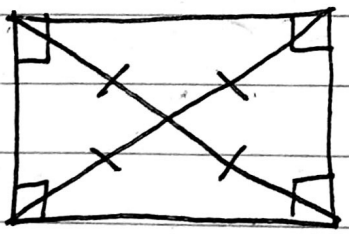


opp. sides // → alt. int. $\measuredangle$s $\cong$

$9x - 2 + 10x + 33 = 180$
$19x + 31 = 180$
$19x = 149$
$x = 7.84$

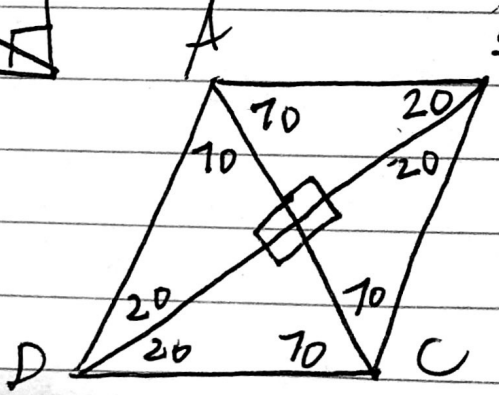
Rectangle

diag. ARE congruent!
all right $\measuredangle$s

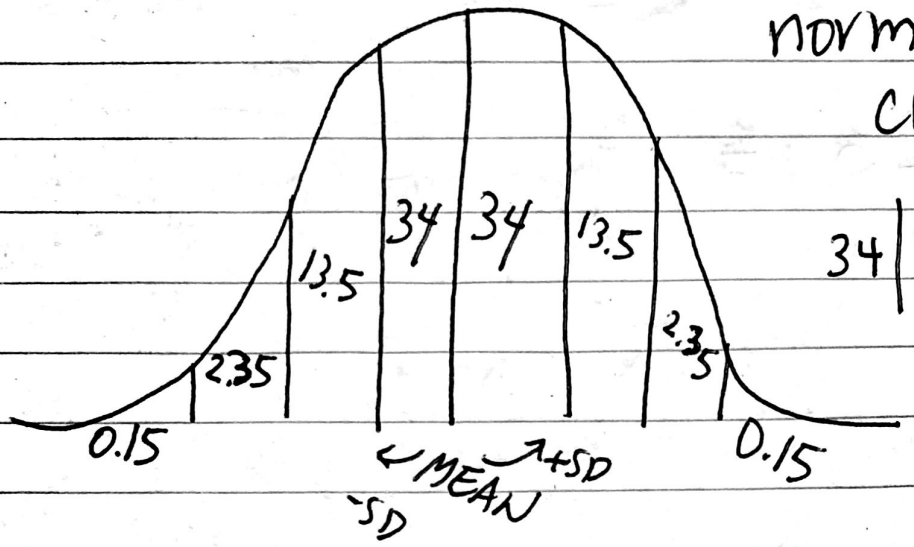


Rhombus

all sides $\cong$
diag. $\perp$



opp. $\measuredangle$s bisected



normal curve

34 | 13.5 | 2.35 | 0.15

sampling methods

cluster vs. stratified

divided / ALL of a group

divided / random from each group

$$y = 3 \sin 4(\theta - 90^\circ) + 2$$

PS VS

↓ amplitude

↓ $K \rightarrow \frac{360}{K}$ = period