Unit 7 Mock Test

$S = 180(n-2)$ S/n $d = \sqrt{(x-x)^2+(y-y)^2}$ $m = \frac{y-y}{x-x}$

① Sum of interior angles of 24-gon: $S = 180(24-2)$ **3960°**

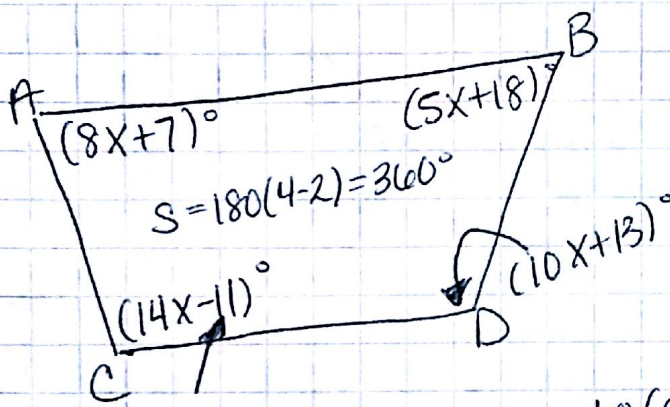
② Sum of interior angles of polygon is 2160°, how many sides?

$2160 = 180(n-2)$

$12 = n-2$

n = 14

③



Find m∠D.

$37x + 27 = 360°$

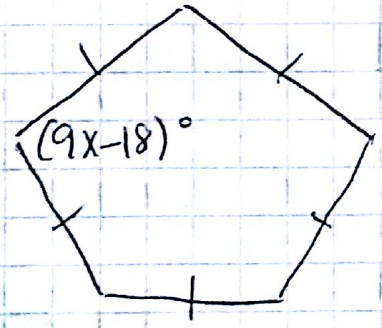
$37x = 333$

$x = 9$

$10(9)+13$

m∠D = 103°

④



Find x.

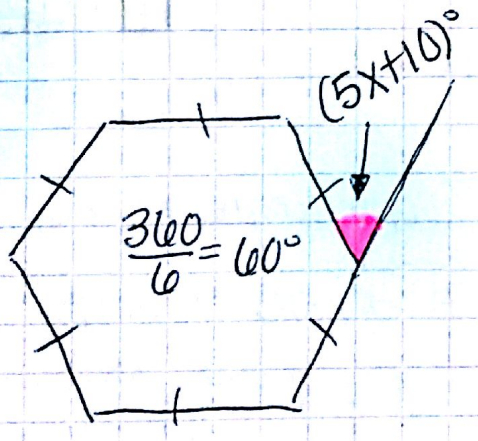
$S = 180(5-2) = \frac{540°}{5} = 108$

$9x - 18 = 108$

$9x = 126$

x = 14

⑤



Find x.

$5x + 10 = 60$

$5x = 50$

$x = 10$

x = 10

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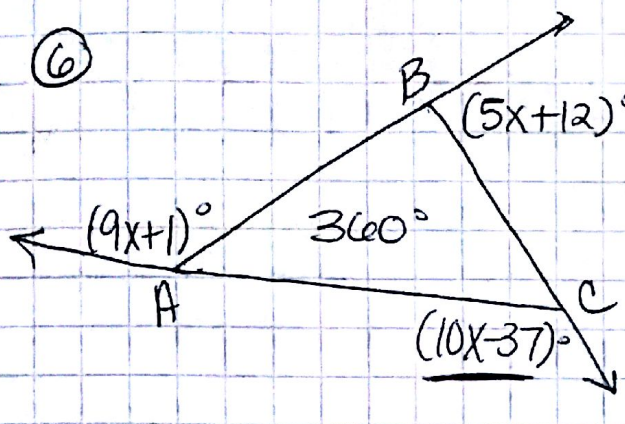
⑥



Find m∠BCA.

$10(16)-37$

$24x - 24 = 360$

$24x = 384$

$x = 16$

m∠BCA = 123°

⑦ Each interior angle of a regular polygon is 140°; how many sides does the polygon have?

40 360÷40.

$n = \frac{360}{40}$

HINT: each exterior angle = $\frac{360}{n}$.

$40 = \frac{360}{n}$

n = 9

⑧ Check all that apply to a parallelogram:

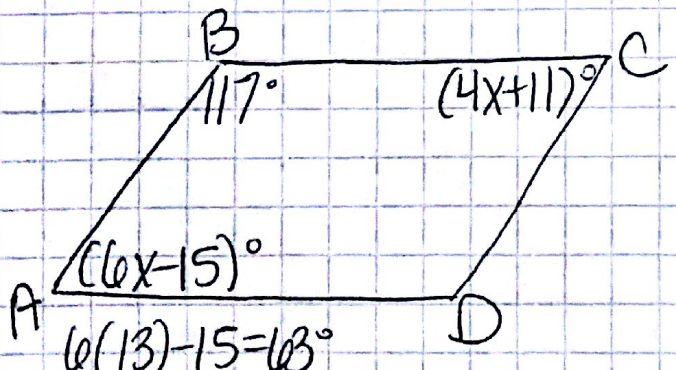
- ☑ diagonals cut in 1/2
- ☐ diagonals =
- ☐ diagonals perpendic.
- ☐ diagonals cut angles in 1/2

⑨ check all quads that always have diagonals equal:

- ☐ parallelograms
- ☐ rhombi
- ☑ isosceles trapezoids
- ☑ rectangles
- ☑ squares

⑩ Parallelogram. Find m∠B.

opp angles equal!



$6x - 15 = 4x + 11$

$2x = 26$

$x = 13$

$6(13)-15=63°$

m∠B = 117°

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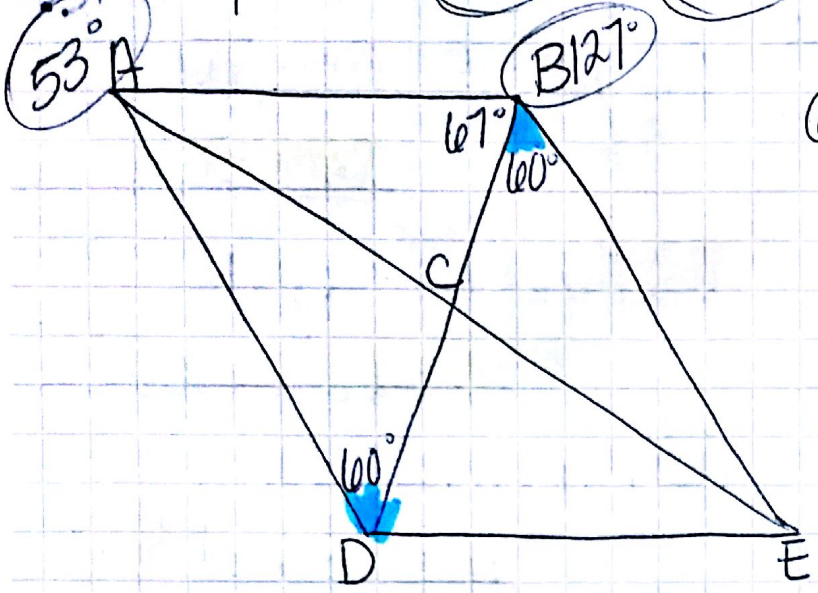
Use pic for #11 and #12 (parallelogram).



⑪ $m\angle DAB = 53°$
$m\angle ABD = 67°$
Find $m\angle BDA$

$m\angle BDA = 60°$

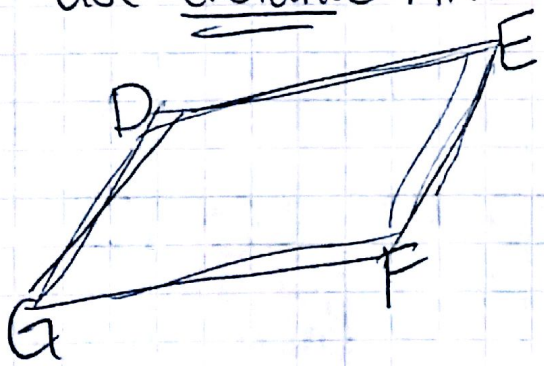
✱⑫ $BD = 8x-14$
$CD = 2x+11$
Find BC.

$8x-14 = 2(2x+11)$
$8x-14 = 4x+22$
$4x = 36$
$x = 9$

$BC = CD = 2(9)+11$

$BC = 29$

⑬ Vertices of quad DEFG are given. Use distance AND slope formulas to decide if it's a parallelogram.



D(-5,-6) E(5,2)
F(4,-4) G(-6,-12)

DE: $d = \sqrt{(-5-5)^2+(-6-2)^2} = \sqrt{164}$ ✓ $m = \frac{-6-2}{-5-5} = \frac{-8}{-10} = \frac{8}{10}$ ✓

GF: $d = \sqrt{(-6-4)^2+(-12+4)^2} = \sqrt{164}$ ✓ $m = \frac{-4+12}{4+6} = \frac{8}{10}$ ✓

opposite sides parallel

DG: $d = \sqrt{(-5+6)^2+(-6+12)^2} = \sqrt{37}$ ✓ $m = \frac{-6+12}{-5+6} = \frac{6}{1} = 6$ ✓

EF: $d = \sqrt{(5-4)^2+(2+4)^2} = \sqrt{37}$ ✓ $m = \frac{-4-2}{4-5} = \frac{-6}{-1} = 6$ ✓

opposidesides equal

YES / NO

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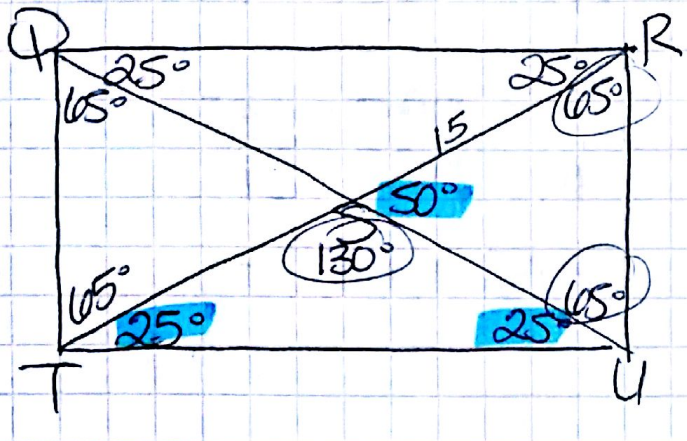
use pic for #14 #16 (rectangle)



(14) RS = 15 Find QU.

QU = 30

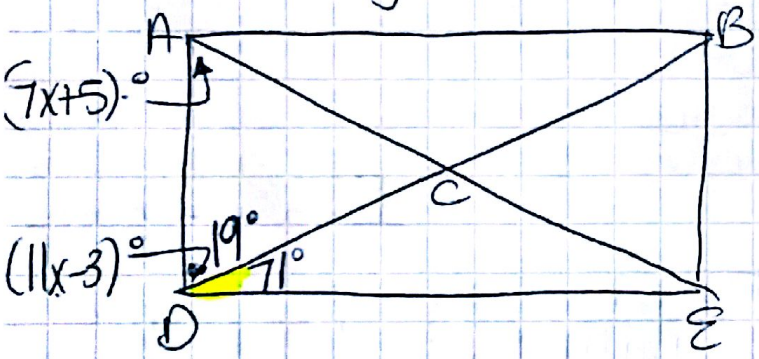
(15) Find m∠QTR

m∠QTR = 65°

(16) Find m∠TSU

m∠TSU = 130°

(17) rectangle



Find m∠CDE.

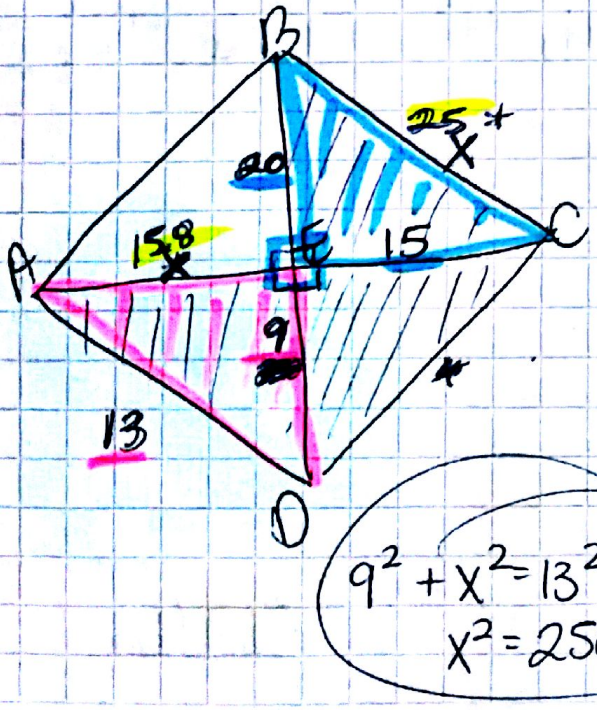
$11x - 3 = 7x + 5$

$4x = 8$

$x = 2$

m∠CDE = 71°

use pic for # 18, #19 (Rhombus)



(18) BD = 40, EC = 15

Find BC.

$15^2 + 20^2 = x^2$

BC = 25

(19) AD = 13, BD = 18

Find AE.

$9^2 + x^2 = 13^2$

$x^2 = 250$

AE = 15.8

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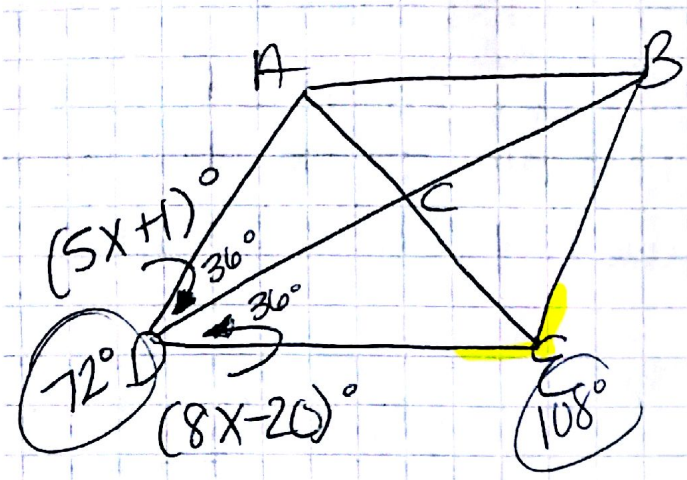
(20) Rhombus.



Find m∠DEB.

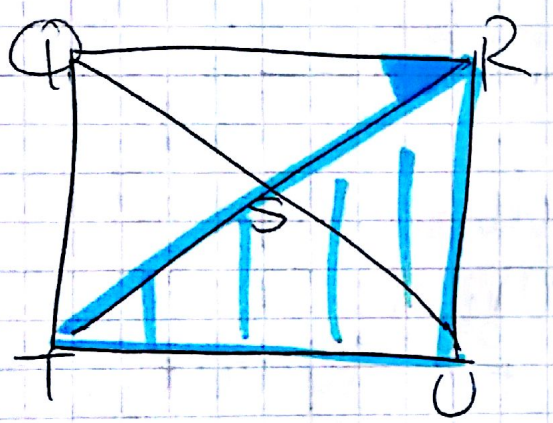
$8x-20=5x+1$

$3x=21$

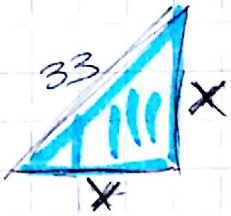
$x=7$

$m\angle DEB = 108°$

(21) use pic for #21 #22 (SQUARE)



(21) If TR = 33 Find TU,



$x^2+x^2=33^2$

$2x^2=33^2$

$x^2=544.5$

$TU = 23.3$

(22) If $m\angle QRT=(7x+3)°$, Find x.

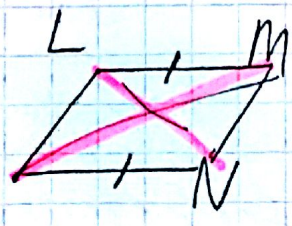
$7x+3=45$

$7x=42$

$x=6$

(23) Quad LMNP has points. Use distance formula to classify (parallelogram, rectangle, rhombus or square) ✱

L(3,-4)
M(10,-2)
N(8,-9)
P(1,-11)



$d=\sqrt{(3-8)^2+(-4+9)^2}=\sqrt{50}$

$d=\sqrt{(10-1)^2+(-2+11)^2}=\sqrt{162}$

$d=\sqrt{(3-10)^2+(-4+2)^2}=\sqrt{53}$ ∠

$d=\sqrt{(8-1)^2+(-9+11)^2}=\sqrt{53}$ ∠

$d=\sqrt{(3-1)^2+(-4+11)^2}=\sqrt{53}$ ∠

$d=\sqrt{(10-8)^2+(-2+9)^2}=\sqrt{53}$ ∠

Answer: Rhombus

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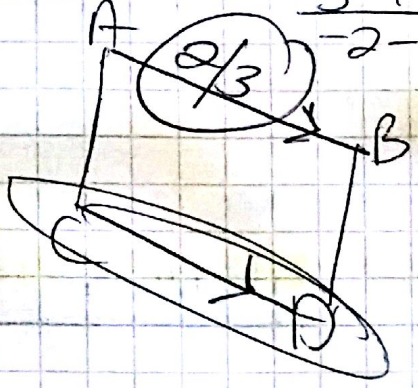
(24) Quad ABCD has points A(-2,-5) B(4,-1)

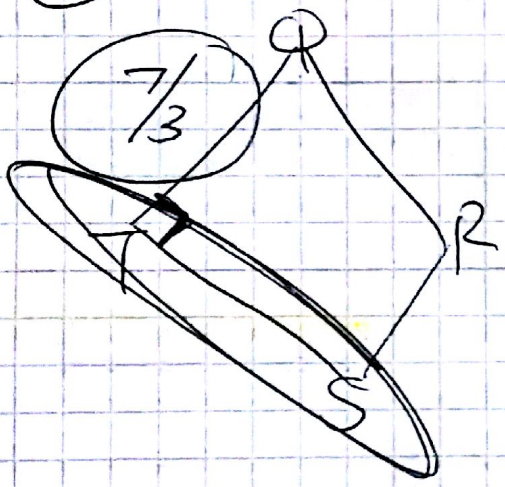
$\frac{-5+1}{-2-4} = \frac{-4}{-6}$



what does slope of CD have to be to make it parallelogram?

$m = \frac{2}{3}$

(25) Rhombus QRST

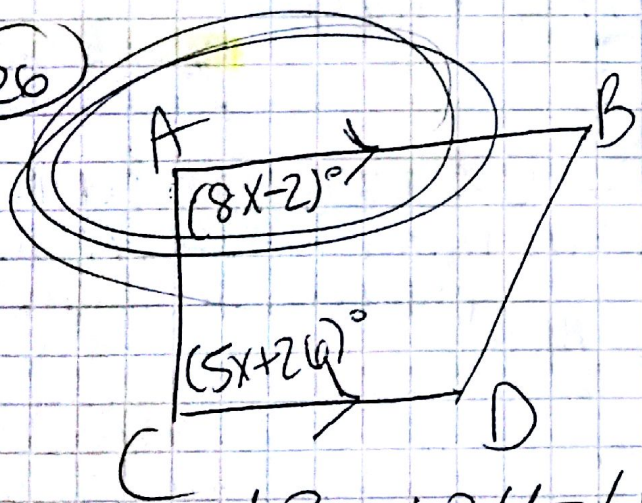


Slope of $TQ = \frac{7}{3}$,

what does slope of TS have to be to make it a square?

$m = -\frac{3}{7}$

(26)



Find $m\angle A$

$13x + 24 = 180$

$13x = 156$

$x = 12$

$m\angle A = 94°$

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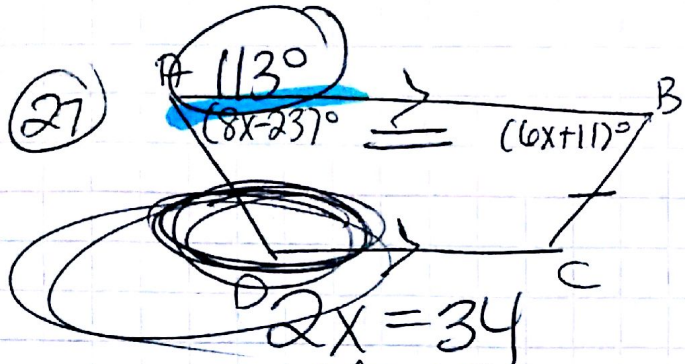
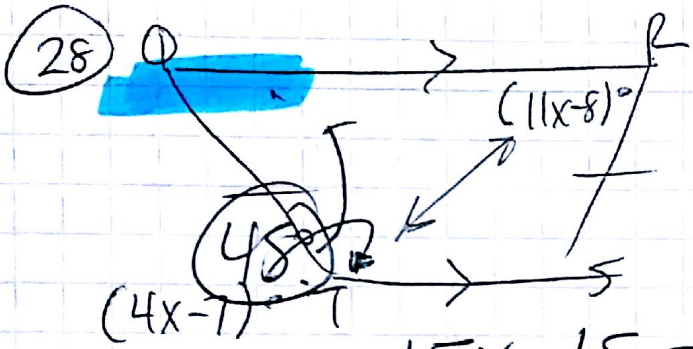
(27) 

Find m∠D.

$2x = 34$

$x = 17$

$m\angle D = 67°$

(28) 

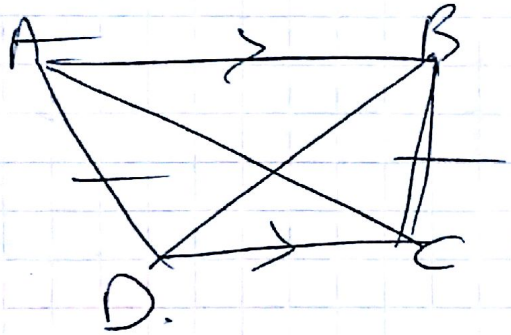
Find m∠Q.

$15x - 15 = 180$

$15x = 195$

$x = 13$

$m\angle Q = 135°$

(29) 

$AC = 15x - 2$

$BD = 9x + 10$

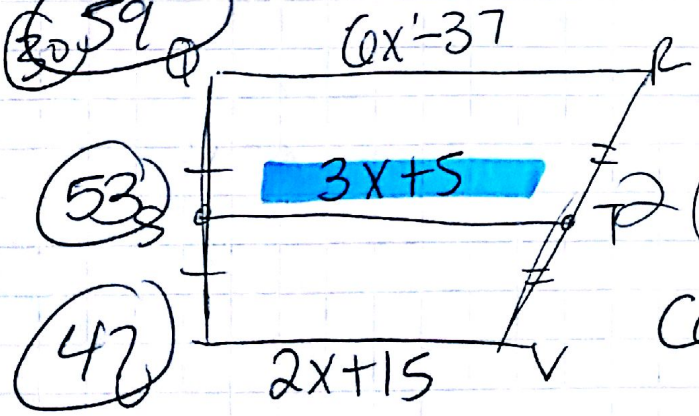
Find AC.

$15x - 2 = 9x + 10$

$6x = 12$

$x = 2$

$AC = 28$

(30) 59 

Find ST.

$2(3x+5) = 6x - 37 + 2x + 15$

$6x + 10 = 8x - 22$

$32 = 2x$

$16 = x$

$ST = 53$

$\frac{top + btm}{2} = MID$

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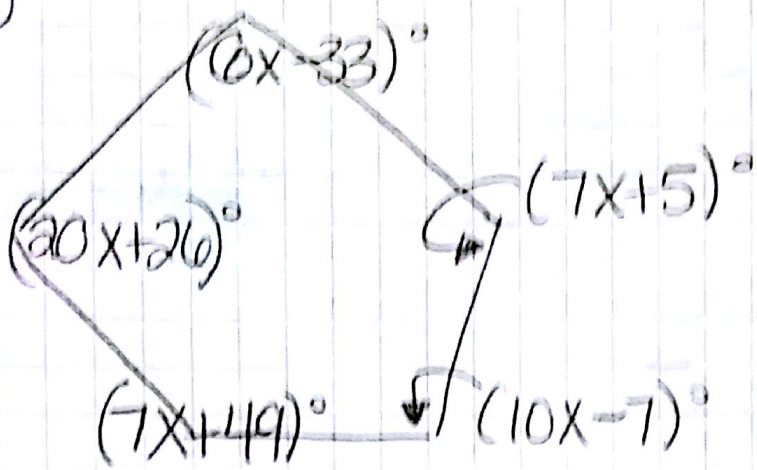
(3)



$S = 180(5-2) = 540°$

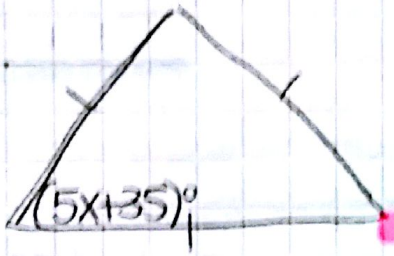
Find x.

$50x + 140 = 540$

$50x = 600$

$\boxed{x = 10}$

(4)



Find x.

$S = 180(3-2) = \frac{180}{3}° = 60°$

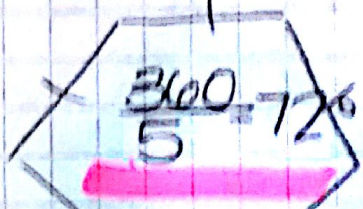
$5x + 35 = 60$

$5x = 25$

$x = 5$

(5)

Find x.



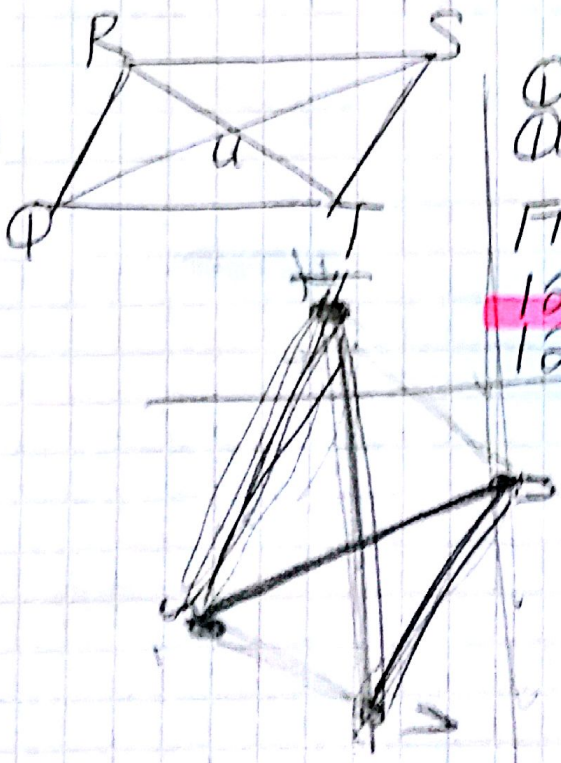
$\frac{360}{5} = 72°$

$(10x+12)° = 72$

$10x = 60$

$x = 6$

(12)



$QS = 12x + 40$

$QU = 5x + 15$

Find RU.

$12x + 40 = 2(5x + 15)$

$12x + 40 = 10x + 30$

$2x = -10$

$x = -5$

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