Name: _____ Period: _____

CCGPS Analytic Geometry
Unit 2B Practice

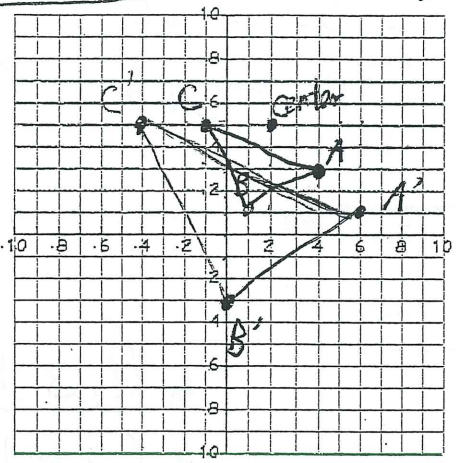
KEY

Part 1: Dilations

1. Plot the triangle A (4, 3) B(1, 1) C(-1, 5). Then graph the dilated image of ABC using the scale factor of 2 and the center as ~~(7, 9)~~. (2, 5)

A →2, ↓2
B ←1, ↓4
C ←3, 0

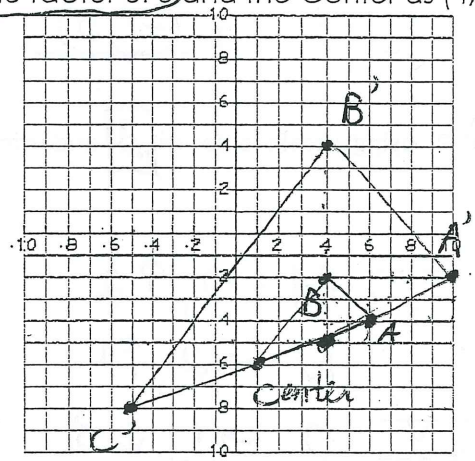
A' →4, ↓4
B' ←2, ↓8
C' ←6, ↓0



A' (6, 1)
B' (0, -3)
C' (-4, 5)

2. Plot the triangle A (6, -4) B(4, -2) C(1, -6). Then graph the dilated image of ABC using the scale factor of 3 and the center as (4, -5).

A →2, ↑1
B ·0, ↑3
C ←3, ↓1

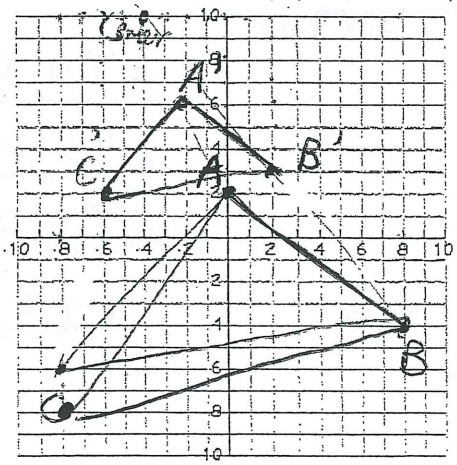


A' →6, ↑3
B' 0, ↑9
C' ←9, ↓3

A' (10, -2)
B' (4, 4)
C' (-5, -8)

3. Plot the triangle A (0, 2) B(8, -4) C(-8, -8). Then graph the dilated image of ABC using the scale factor of 1/2 and the center as (-4, 10).

A →4, ↓8
B →12, ↓-14
C ←4, ↓16

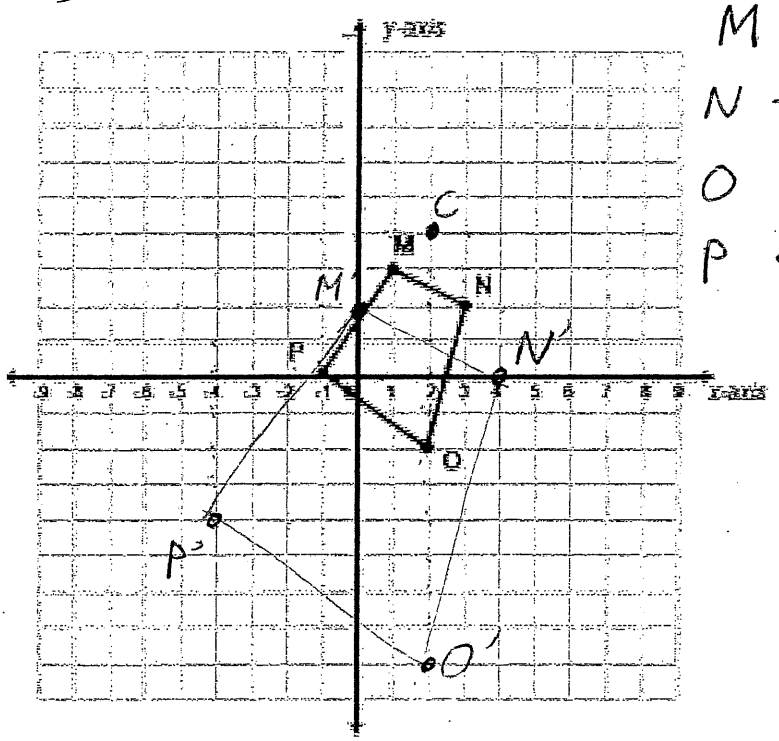


A' →2, ↓4
B' →6, ↓7
C' ←2, ↓8

~~A' (-2, 6)~~
~~B' (8, -4)~~
~~C' (-8, -6)~~

Correction
A'(-2, 6)
B'(2, 3)
C'(-6, 1)

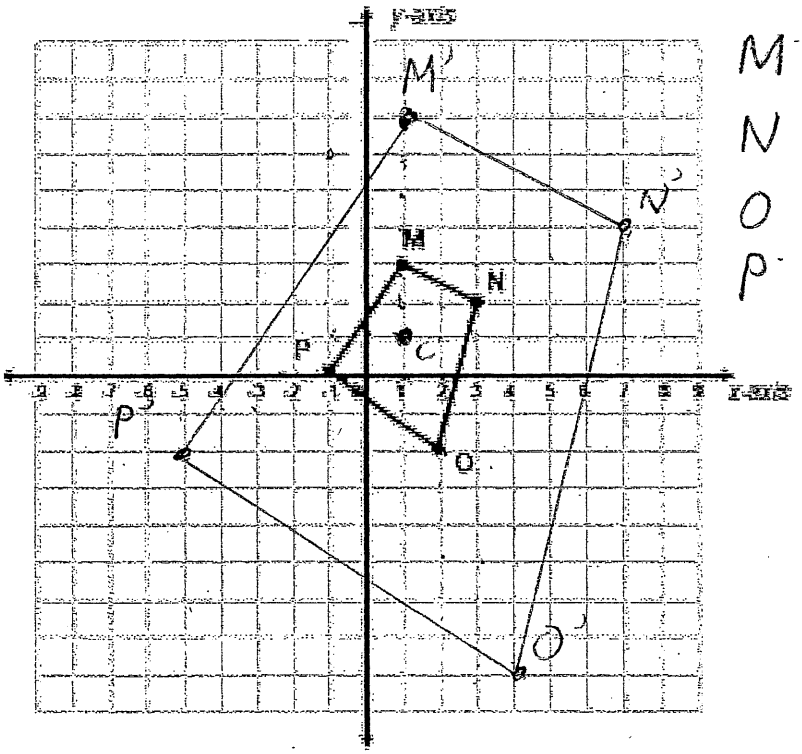
4) Graph a dilated image of quadrilateral MNOP using a scale factor of 2 and (2,4) as the center of dilation.



M ← 1, ↓ 1 M' ← 2, ↓ 2
N → 1, ↓ 2 N' → 2, ↓ 4
O 0, ↓ 6 O' 0 ↓ 12
P ← 3, ↓ 4 P' ← 6, ↓ 8

M: (1, 3) M': (0, 2)
N: (3, 2) N': (4, 0)
O: (2, -2) O': (2, -8)
P: (-1, 0) P': (4, -4)

5) Graph a dilated image of quadrilateral MNOP using a scale factor of 3 and using the ~~origin~~ (1,1) as the center of dilation.



M 0, ↑ 2 M' 0, ↑ 4
N → 2, ↑ 1 N' → 6, ↑ 3
O → 1, ↓ 3 O' → 3, ↓ 9
P ← 2, ↓ 1 P' ← 6, ↓ 3

M: (0, 3) M': (1, 7)
N: (3, 2) N': (7, 4)
O: (2, -2) O': (4, -8)
P: (-1, 0) P': (-5, -2)

Part 2: Sim

1. MATH ~ KIDS

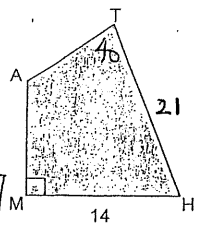
(a) ratio = 14:8 or 7:4

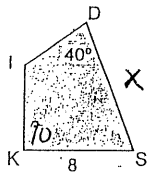
(b) m∠K = 90°

(c) m∠T = 40°

(d) Scale factor = $\frac{\text{image}}{\text{pre-image}} = \frac{8}{14} = \frac{4}{7}$

(f) DS = 12





$\frac{14}{8} = \frac{20}{x} \rightarrow \frac{7}{4} = \frac{21}{x}$ $7x = 84$ $x = 12$

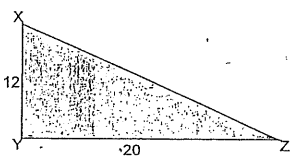
2. ABC ~ XYZ

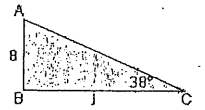
(a) Scale factor = $\frac{8}{12} = \frac{2}{3}$

(b) Ratio = 12:8 or $\frac{3}{2}$

(b) j = _____

(c) m∠Z = 38°





$\frac{12}{8} = \frac{20}{j} \rightarrow \frac{3}{2} = \frac{20}{j}$ $3j = 40$ $j = \frac{40}{3}$

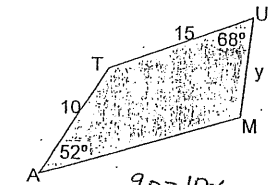
3. Quad. TAMU ~ Quad. T'A'M'U'

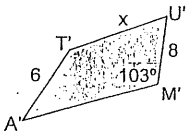
(a) Scale factor = $\frac{6}{10} = \frac{3}{5}$

(b) x = _____

(c) y = _____

(d) ratio = 10:6 or $\frac{5}{3}$





$\frac{x}{15} = \frac{6}{10}$ $90 = 10x$ $9 = x$

$\frac{8}{y} = \frac{6}{10}$ $6y = 80$ $y = \frac{80}{6}$ $y = \frac{40}{3}$

Solve the following proportions for x.

4. $\frac{8}{x} = \frac{12}{x+6}$

$8(x+6) = 12x$

$8x + 48 = 12x$

$48 = 4x$

$12 = x$

5. $\frac{x}{8} = \frac{6}{15}$

$15x = 48$

$x = 3.2$ or $\frac{16}{5}$

6. $\frac{6}{x+4} = \frac{5}{x-7}$

$6(x-7) = 5(x+4)$

$6x - 42 = 5x + 20$

$-5x \quad +42 \quad -5x \quad +42$

$1x = 62$

$x = 62$

7. $\frac{5}{2x-7} = \frac{13}{x-3}$

$5(x-3) = 13(2x-7)$

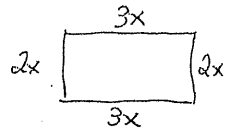
$5x - 15 = 26x - 91$

$76 = 21x$

$x = \frac{76}{21}$

Solve the following.

8. The perimeter of a rectangle is 40 feet. The ratio of the width to the length is 2:3. Find the length and width.



$2x + 3x + 2x + 3x = 40$

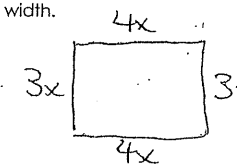
$10x = 40$

$x = 4$

length = 3(4) = 12 ft.

width = 2(4) = 8 ft.

9. The perimeter of a rectangle is 126 feet. The ratio of the width to the length is 3:4. Find the length and width.



$7x + 7x = 126$

$14x = 126$

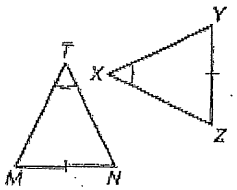
$x = 9$

length = 4(9) = 36 ft.

width = 3(9) = 27 ft.

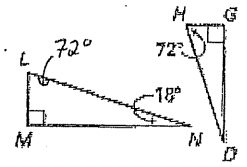
Determine if the triangles are similar. State the reason. (SSS, AA, or SAS)

4.



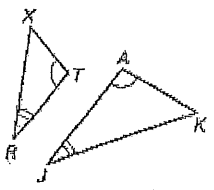
Not enough info

5.



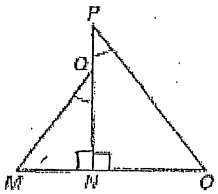
Similar by AA

6.



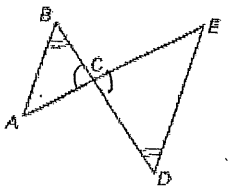
Similar by AA

7.



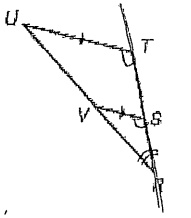
Similar by AA

8.



Similar by AA

9.



$\Delta UTR \sim \Delta VSR$ by AA

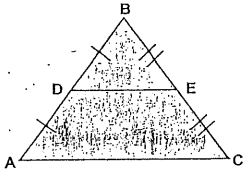
5

Part 3: Mids

1. If AC = 30, then DE = 15.

2. If DE = 5, then AC = 10.

3. If DE = x + 6 and AC = 3x + 4, then x = _____.



2DE = AC
2(x+6) = 3x+4
2x+12 = 3x+4
8 = x

4. If DE = x + 2 and AC = 5x – 23, then x = _____.

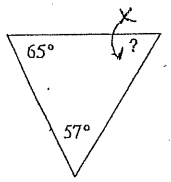
2(x+2) = 5x-23
2x+4 = 5x-23
27 = 3x
9 = x

5. If DE = 3x – 1 and AC = 3x – 8, then x = _____.

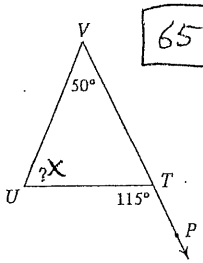
2(3x-1) = 3x-8
6x-2 = 3x-8
+2
3x = -6
x = -2

Part 4: Interior and Exterior Angles

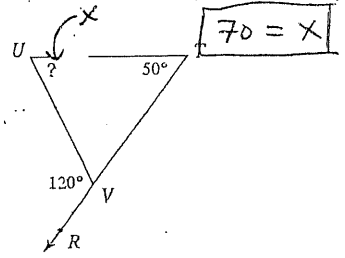
Find the missing angles for the following problems.

1. 

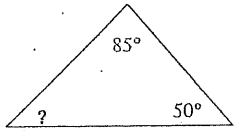
x+65+57=180
x = 58

2. 

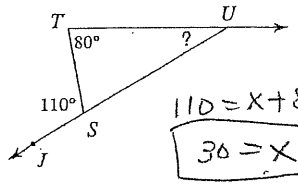
115 = x+50
65 = x

3. 

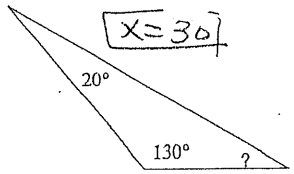
120 = x+50
70 = x

4. 

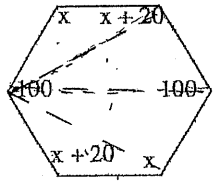
x+50+85=180
x = 45

5. 

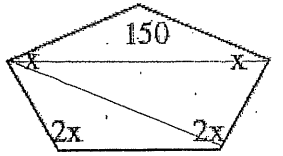
110 = x+80
30 = x

6. 

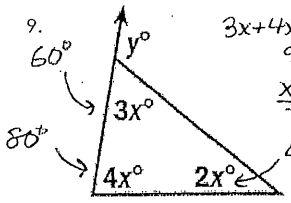
x+1? ?0=180
x=30

7. 

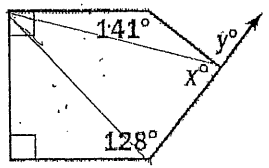
x+x+20+200+x+x+20 = 4(180)
4x+240 = 720
4x = 480
x = 120

8. 

x+x+2x+2x+150 = 3(180)
6x+150 = 540
6x = 390
x = 65

9. 

3x+4x+2x=180
9x=180
x=20
y=80+40
y=120°

10. 

90+90+141+128+x = 3(180)
449+x = 540
x = 91°
y = 180-91 = 89°

Formula 11. Find the sum of the interior angles for the following polygons. Then find the measure of one interior angle, assuming they are all regular.

Sum = 180(n-2)

a. 20-gon

b. 24-gon

c. 67-gon

d. 32-gon

a) Sum = 180(20-2) = 3240°
one angle = 3240/20 = 162°

b) Sum = 180(24-2) = 3960°
one angle = 3960/24 = 165°

c) Sum = 180(67-2) = 11700°
one angle = 11700/67 = 174.6°

d) Sum = 180(32-2) = 5400°
one angle = 5400/32 = 168.75°