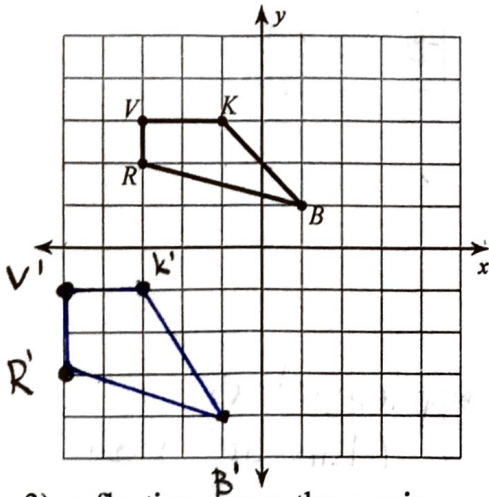


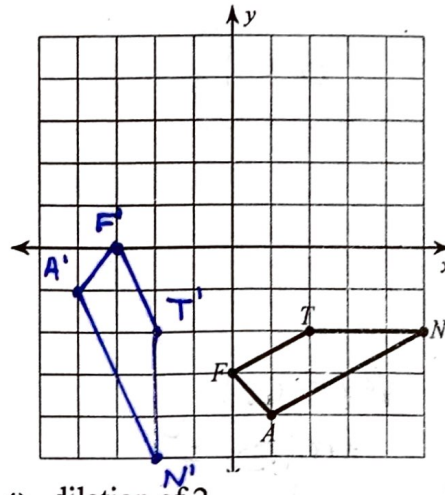
Semester 1 C Level Final Review

G1: Graph the image of the figure using the transformation given.

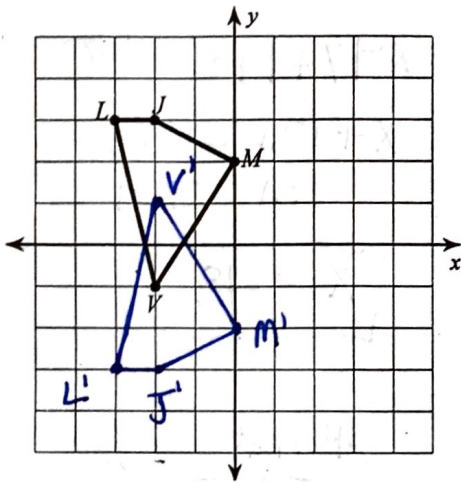
1) translation: 2 units left and 4 units down



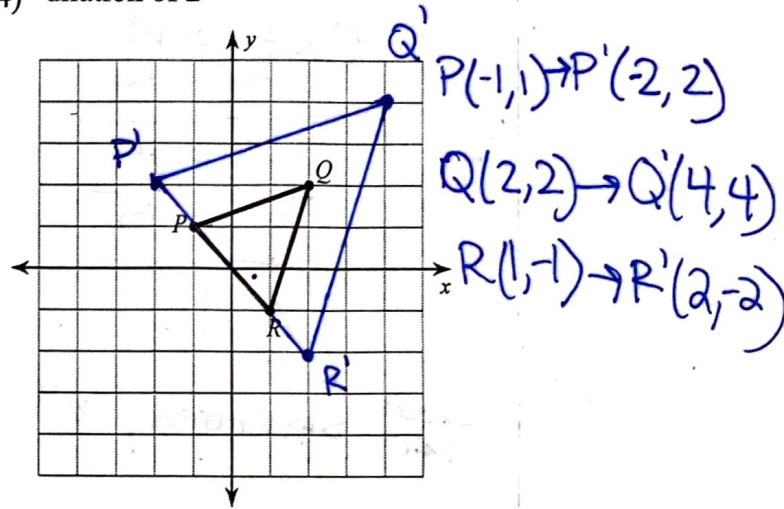
2) rotation 90° clockwise about the origin



3) reflection across the x-axis

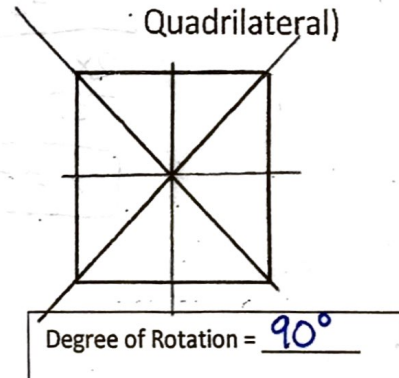


4) dilation of 2



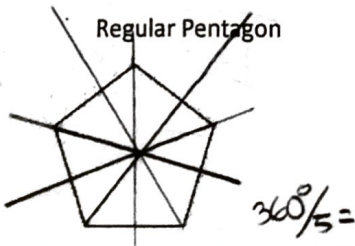
5) For each shape below, determine if it has reflection symmetry and/or rotation symmetry. If it has reflection symmetry, draw all lines of symmetry. If it has rotation symmetry, calculate the angle of rotation.

Square (Regular Quadrilateral)



Degree of Rotation = 90°

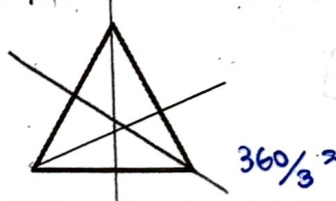
Regular Pentagon



$360/5 =$

Degree of Rotation = 72°

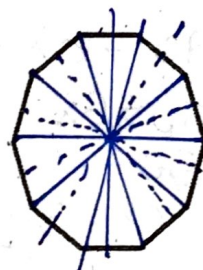
Equilateral Triangle



$360/3 =$

Degree of Rotation = 120°

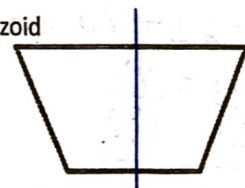
Regular Decagon (10 sides)



$360/10 =$

Degree of Rotation = 36°

Isosceles Trapezoid



Degree of Rotation = 360°

G2: Line and Angle Properties

Find the measure of angle b.

6) *complementary Angle*

$90 - 29^\circ = 61^\circ$

$b = 61^\circ$

7) *corresponding Angles \cong (congruent)*

$b = 52^\circ$

Find the value of x.

8) *Vertical Angles \cong*

$5x + 4 = 49$

$$\begin{array}{r} 5x + 4 = 49 \\ -4 \quad -4 \\ \hline 5x = 45 \\ \underline{\quad} \quad \underline{\quad} \\ x = 9 \end{array}$$

$x = 9$

9) *Supplementary (Linear Pair) 180°*

$x - 17 + 148 = 180$

$x + 131 = 180$

$$\begin{array}{r} x + 131 = 180 \\ -131 \quad -131 \\ \hline x = 49 \end{array}$$

$x = 49$

Solve for x. *Linear Pair supplementary 180°*

10)

$x + 81 + x + 121 = 180$

$$\begin{array}{r} x + 81 + x + 121 = 180 \\ 2x + 202 = 180 \\ -202 \quad -202 \\ \hline 2x = -22 \\ \underline{\quad} \quad \underline{\quad} \\ x = -11 \end{array}$$

$x = -11$

11) *Alternate Interior \cong*

$125 = 16x - 3$

$$\begin{array}{r} 125 = 16x - 3 \\ +3 \quad +3 \\ \hline 128 = 16x \\ \underline{\quad} \quad \underline{\quad} \\ x = 8 \end{array}$$

$x = 8$

12) *Triangle Angle Sum = 180°*

$50 + x + 62 + 70 = 180$

$$\begin{array}{r} x + 182 = 180 \\ -182 \quad -182 \\ \hline x = -2 \end{array}$$

$x = -2$

13)

$60 + 90 + 6x = 180$

$$\begin{array}{r} 150 + 6x = 180 \\ -150 \quad -150 \\ \hline 6x = 30 \\ \underline{\quad} \quad \underline{\quad} \\ x = 5 \end{array}$$

$x = 5$

G3: Similarity

State if the polygons are similar.

14)

$\frac{24}{4} = 6$
 $\frac{36}{6} = 6$
Similar

15)

$\frac{36}{30} = 1.2$
 $\frac{60}{35} = 1.71$
Not similar

The polygons in each pair are similar. Find the missing side length.

16)

~~$\frac{16}{x} = \frac{6}{3}$~~
 $6x = 16 \cdot 3$
 $6x = 48$
 $\frac{6x}{6} = \frac{48}{6}$
 $x = 8$

17)

~~$\frac{x}{20} = \frac{18}{15}$~~
 $15x = 20 \cdot 18$
 $15x = 360$
 $\frac{15x}{15} = \frac{360}{15}$
 $x = 24$

Solve for x. The polygons in each pair are similar.

18)

~~$\frac{48}{5x} = \frac{21.6}{18}$~~
 $5x \cdot 21.6 = 48 \cdot 18$
 $\frac{108x}{108} = \frac{864}{108}$
 $x = 8$

19)

~~$\frac{21}{2x+2} = \frac{18}{12}$~~
 $18(2x+2) = 21 \cdot 12$
 $36x + 36 = 252$
 $\frac{36x + 36}{-36} = \frac{252}{-36}$
 $36x = 216$
 $x = 6$

State if the triangles in each pair are similar. If so, state how you know they are similar and complete the similarity statement.

20)

$56 - 48 = 8$
 $\frac{56}{8} = 7$
 $\frac{48}{11} = 7$
 $\angle U = \angle U$
 $\triangle UVW \sim \triangle UCB$ SAS

21)

$\frac{168}{37} = 4.54$
 $\frac{182}{39} = 4.6$
Not similar
 $\triangle EFG$ / Not similar

$$A^2 + B^2 = C^2$$

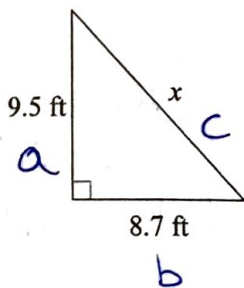
G4: Trigonometry

Find the missing side of each triangle. your answers to the nearest hundredth if necessary.

Round

Pythagorean Thm

22)



$$9.5^2 + 8.7^2 = x^2$$

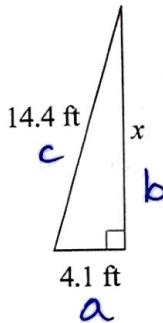
$$90.25 + 75.69 = x^2$$

$$165.94 = x^2$$

$$\sqrt{165.94} = \sqrt{x^2}$$

$$x = 12.88 \text{ ft}$$

23)



$$4.1^2 + x^2 = 14.4^2$$

$$16.81 + x^2 = 207.36$$

$$\begin{array}{r} 16.81 \\ -16.81 \\ \hline \end{array}$$

$$x^2 = 190.55$$

$$\sqrt{x^2} = \sqrt{190.55}$$

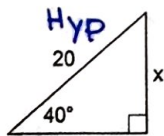
$$x = 13.8 \text{ ft}$$

G4: Trigonometry

Find the missing side. Round to the nearest hundredth.

Trigonometry

24)



$$\sin 40^\circ = \frac{x}{20}$$

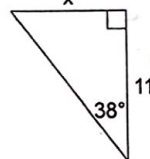
$$20(\sin 40^\circ) = \frac{x}{20} \cdot 20$$

$$x = 20(\sin 40^\circ)$$

$$x = 12.85$$

$$x = 12.86$$

25)



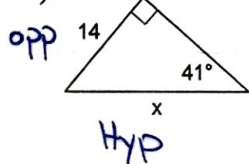
$$\tan 38^\circ = \frac{x}{11}$$

$$11(\tan 38^\circ) = \frac{x}{11} \cdot 11$$

$$x = 11(\tan 38^\circ)$$

$$x = 8.59$$

26)



$$\sin 41^\circ = \frac{14}{x}$$

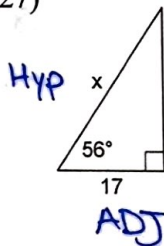
cross-multiply

$$x(\sin 41^\circ) = \frac{14}{\sin 41^\circ}$$

$$x = 21.33$$

$$x = 21.34$$

27)



$$\cos 56^\circ = \frac{17}{x}$$

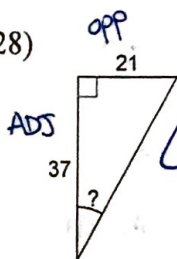
$$x(\cos 56^\circ) = 17$$

$$x = \frac{17}{\cos 56^\circ}$$

$$x = 30.40$$

Find the measure of the indicated angle to the nearest hundredth of a degree. Inverse Trigonometry

28)

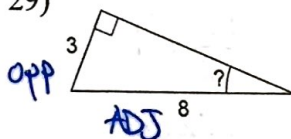


$$\theta = \tan^{-1}\left(\frac{21}{37}\right)$$

$$\theta = 29.57^\circ$$

$$\theta = 29.58^\circ$$

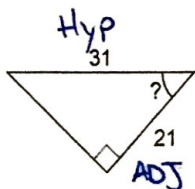
29)



$$\theta = \sin^{-1}\left(\frac{3}{8}\right)$$

$$\theta = 22.02^\circ$$

30)

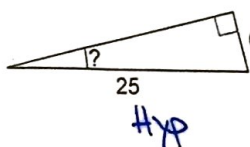


$$\theta = \cos^{-1}\left(\frac{21}{31}\right)$$

$$\theta = 47.35^\circ$$

$$\theta = 47.36^\circ$$

31)



$$\theta = \sin^{-1}\left(\frac{6}{25}\right)$$

$$\theta = 13.88^\circ$$

$$\theta = 13.89^\circ$$