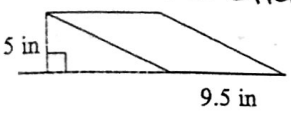
CCSS Geometry Name Key ID: 1

Semester 1 C Level Final Review

Date _____ Period ____

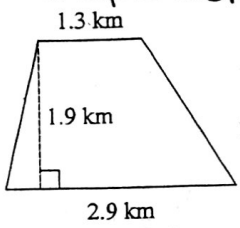
G1A: Find the area of each polygon. Round your answer to the nearest hundredth.

1) 

Parallelogram $A=bh$

$A=(9.5)(5)$

$=47.5\text{ in}^2$

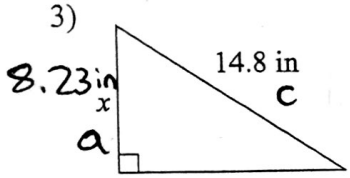
2) 

Trapezoid $=\frac{(b_1+b_2)h}{2}$

$A=\frac{(1.3+2.9)(1.9)}{2}$

$=3.99\text{ km}^2$

Find the missing side of each triangle. Find the area and the perimeter of the triangle. Round your answers to the nearest hundredth if necessary.

3) 

Pythagorean Thm $a^2+b^2=c^2$

$x^2+12.3^2=14.8^2$

$x^2+151.29=219.04$

$-151.29\quad -151.29$

$x^2=67.75$

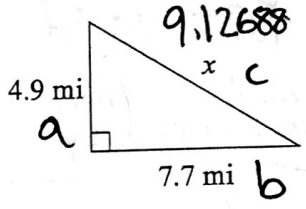
$x=8.23$ in

$P=8.23+12.3+14.8$

$=35.33$ in

$A=\frac{bh}{2}=\frac{(8.23)(12.3)}{2}$

$A=50.61\text{ in}^2$

4) 

$a^2+b^2=c^2$

$4.9^2+7.7^2=x^2$

$24.01+59.29=x^2$

$83.3=x^2$

$x=9.12688$ mi

$P=4.9+7.7+9.13=21.73$ mi

$A=\frac{bh}{2}=\frac{(4.9)(7.7)}{2}=18.87\text{ mi}^2$

5) Find the distance between each pair of points. Round your answers to the nearest hundredth.

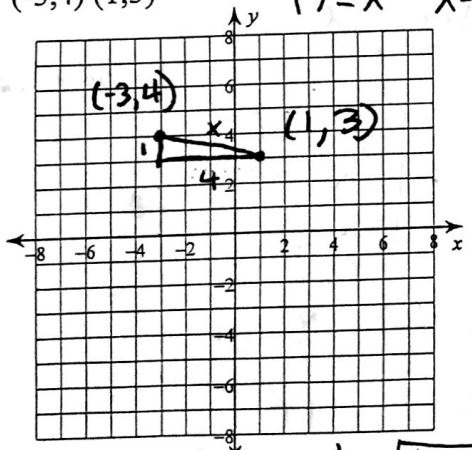
Pyth. Thm. $1^2+4^2=x^2$

$1+16=x^2$

$17=x^2$ $x=4.12$

x_1, y_1 x_2, y_2

(-3,4) (1,3)



distance formula: $d=\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$

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

$=\sqrt{(4)^2+(-1)^2}=\sqrt{16+1}=\sqrt{17}\approx 4.12$

6) Find the distance between each pair of points. Round your answers to the nearest hundredth.

Pythagorean Thm $2^2+4^2=x^2$

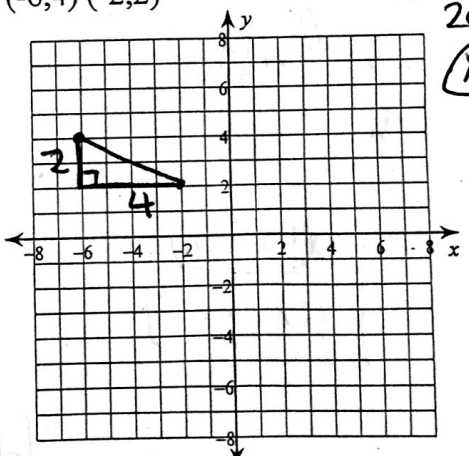
$4+16=x^2$

$20=x^2$

$x=4.47$

x_1, y_1 x_2, y_2

(-6,4) (-2,2)



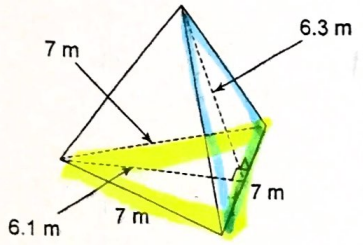
$d=\sqrt{(-2--6)^2+(2-4)^2}$

$=\sqrt{(4)^2+(-2)^2}$

$=\sqrt{16+4}=\sqrt{20}\approx 4.47$

G1B :Find the surface area of each figure. Round your answers to the nearest hundredth, if necessary.

7) Triangular pyramid



Base triangle

$A = \frac{bh}{2} = \frac{(6.1)(7)}{2}$

$= \frac{42.7}{2} = 21.35 m^2$

$A = \frac{bh}{2} = \frac{(6.3)7}{2}$

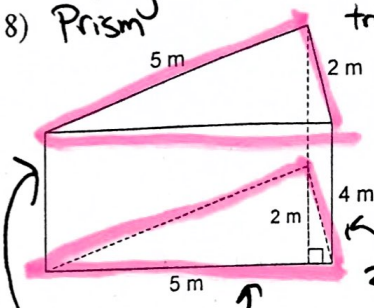
$= \frac{44.1}{2}$

$= 22.05 m^2$

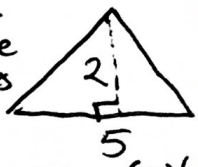
3 of these triangles

$SA = 21.35 + (22.05 \cdot 3) = 87.5 m^2$ SA

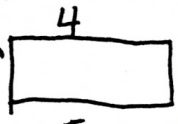
8) Triangular Prism



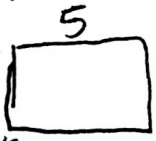
2 of these triangles



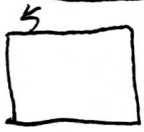
$A = \frac{bh}{2} = \frac{(5)(2)}{2} = 5 m^2$



$A = lw = (4)2 = 8 m^2$



$A = (5)(4) = 20 m^2$



$A = (5)(4) = 20 m^2$

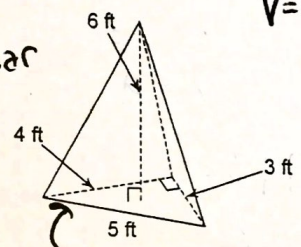
$SA = 5(2) + 8 + 20 + 20$

$SA = 58 m^2$

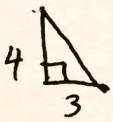
Find the volume of each figure. Round your answers to the nearest hundredth, if necessary.

$V = \frac{(\text{area of base triangle})(\text{height of Pyramid})}{3}$

9) Triangular Pyramid



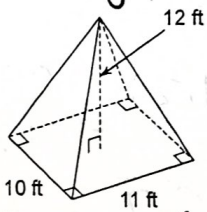
base triangle



$A = \frac{bh}{2} = \frac{(4)(3)}{2} = 6 ft^2$

$V = \frac{(6)(6)}{3} = \frac{36}{3} = 12 ft^3$

10) Rectangular pyramid



Base rectangle $A = lw$

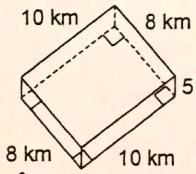
$= (10)(11) = 110 ft^2$

$V = \frac{(\text{Area of base})(\text{height of pyramid})}{3}$

$= \frac{(110)(12)}{3} = 440 ft^3$

Rectangular prism

11) $V = lwh$

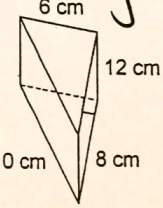


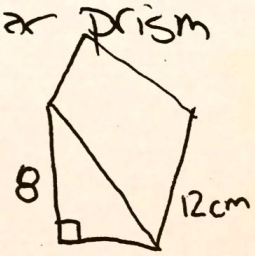
l w h

$V = (8)(10)(5)$

$= 400 km^3$

12) Triangular prism





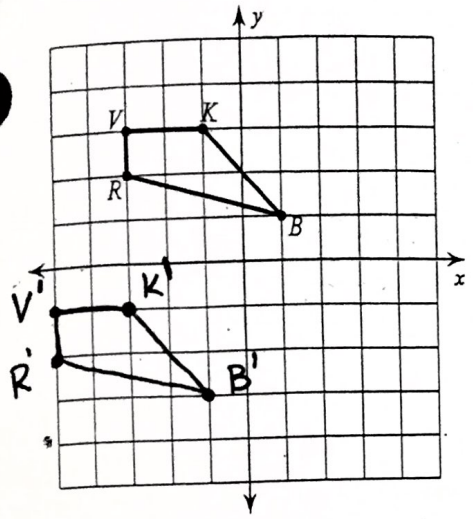
Area of triangle $= \frac{bh}{2} = \frac{8(6)}{2} = \frac{48}{2} = 24$

Volume $= (\text{area of triangle})(\text{height of prism})$

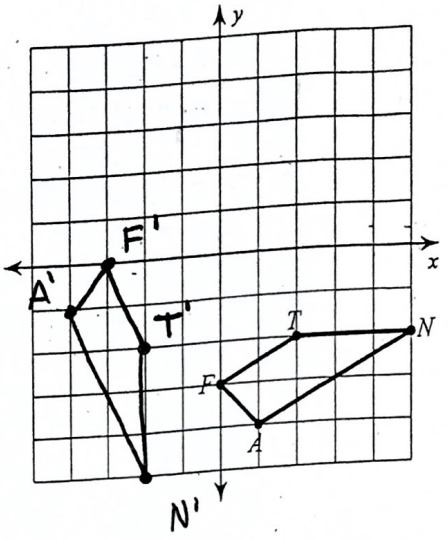
$= (24)(12) = 288 cm^3$

G2A: Graph the image of the figure using the transformation given.

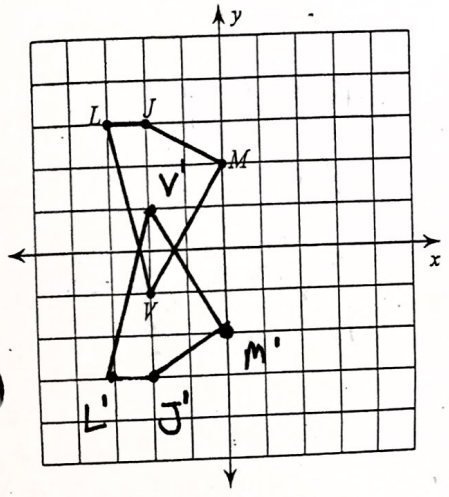
13) translation: 2 units left and 4 units down



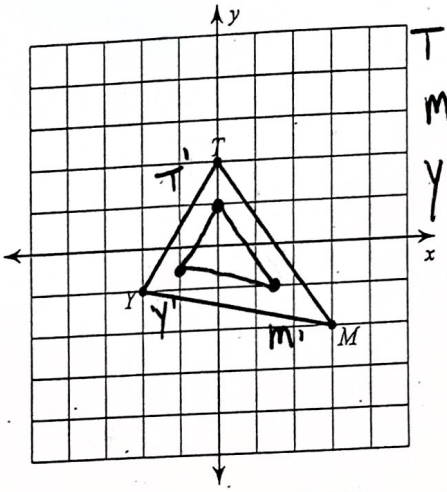
14) rotation 90° clockwise about the origin



15) reflection across the x-axis



16) dilation of $\frac{1}{2} = .5$

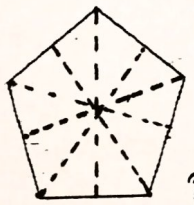


T(0,2) T'(0,1)
M(3,-2) M'(1.5,-1)
Y(-2,-1) Y'(-1,-.5)

17)

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.**

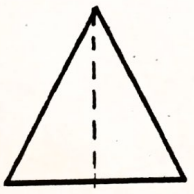
A) Regular Pentagon



$\frac{360}{5} = 72°$

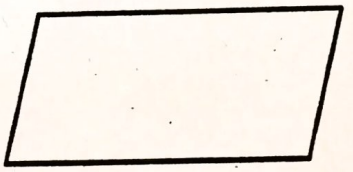
Degree of Rotation = 72°

B) Isosceles triangle



Degree of Rotation = 360°

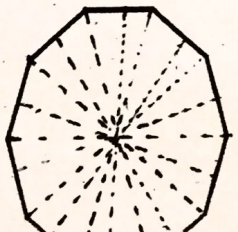
C) Parallelogram



Degree of Rotation = 180°

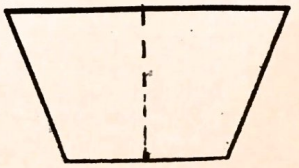
E) Regular Decagon (10 sides)

$\frac{360}{10} = 36°$ rotational



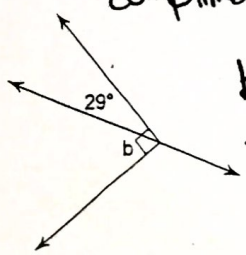
F) Isosceles Trapezoid

360° rotational symmetry



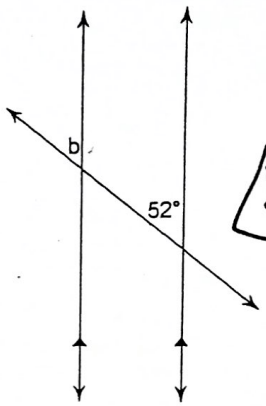
G2b: Line and Angle Properties
Find the measure of angle b.

18) complimentary angles 90°



$b+29=90$
$-29\ \ -29$
$b=61°$

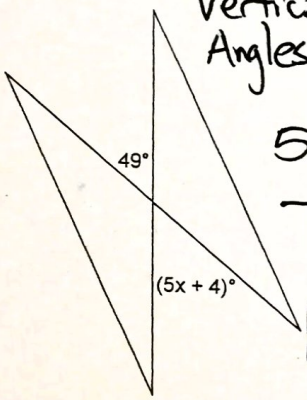
19) Corresponding angles



$b=52°$

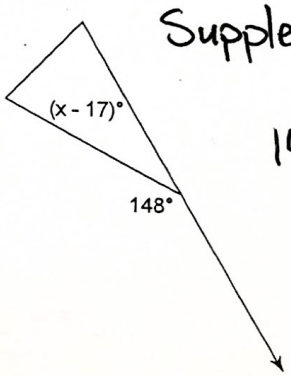
Find the value of x.

20) Vertical Angles



$5x+4=49$
$-4\ \ -4$
$\frac{5x}{5}=\frac{45}{5}$
$x=9$

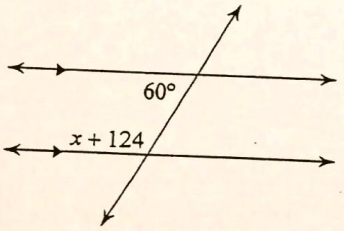
21) Supplementary/ Linear pair



$148+x-17=180$
$x+131=180$
$-131\ \ -131$
$x=49$

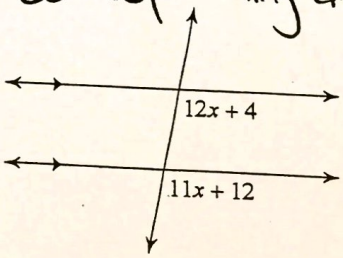
Solve for x.

22) Same side interior, supplementary, 180°



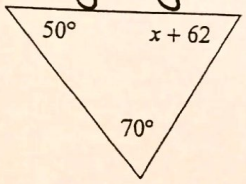
$x+124+60=180$
$x+184=180$
$-184\ \ -184$
$x=-4$

23) Corresponding angles, Congruent $\cong$



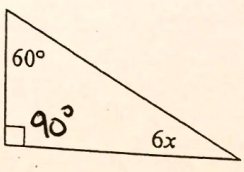
$12x+4=11x+12$
$-11x\ \ -4\ \ -11x\ \ -4$
$x=8$

24) Triangle angle sum Thm, 180°



$50+70+x+62=180$
$x+182=180$
$-182\ \ -182$
$x=-2$

25)

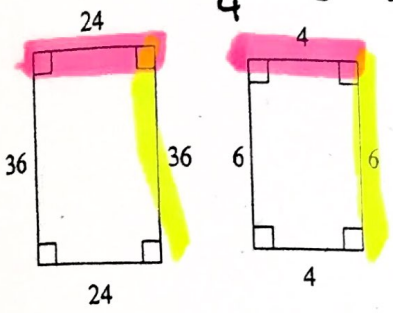


$60+90+6x=180$
$6x+150=180$
$-150\ \ -150$
$\frac{6x}{6}=\frac{30}{6}$
$x=5$

G3: Similarity

State if the polygons are similar.

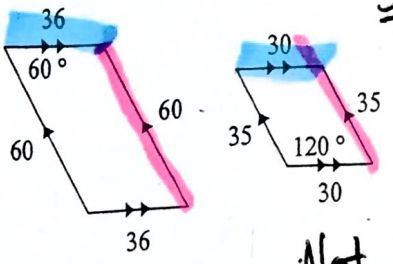
26)



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

Similar

27)



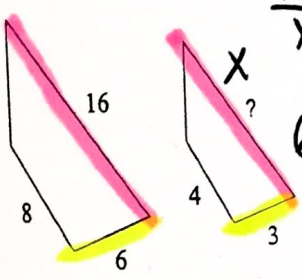
$\frac{36}{30}=1.2$

$\frac{60}{35}=1.71$

Not similar

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

28)



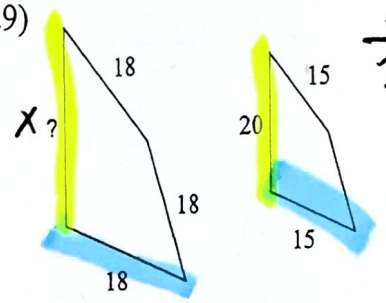
$\frac{16}{X}=\frac{6}{3}$ cross multiply

$6X=(3)(16)$

$\frac{6X}{6}=\frac{48}{6}$

$X=8$

29)



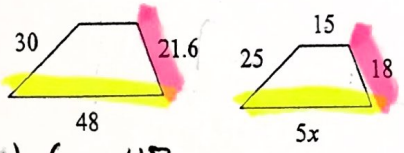
$\frac{X}{20}=\frac{18}{15}$

$\frac{15X}{15}=\frac{360}{15}$

$X=24$

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

30)



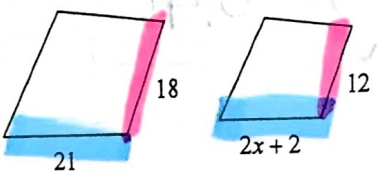
$\frac{21.6}{18}=\frac{48}{5X}$ cross multiply

$(5X)(21.6)=(18)(48)$

$\frac{108X}{108}=\frac{864}{108}$

$X=8$

31)



$\frac{18}{12}=\frac{21}{2x+2}$

$18(2x+2)=12(21)$

$36x+36=252$

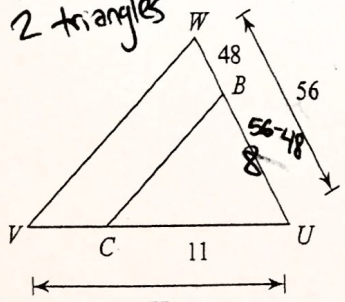
$-36\quad -36$

$\frac{36x}{36}=\frac{216}{36}$

$X=6$

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

32) redraw as 2 triangles

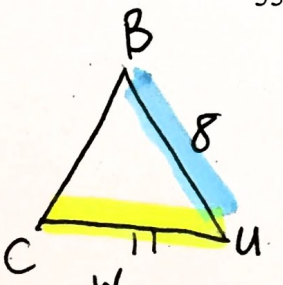


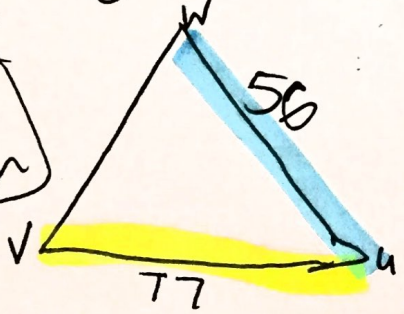
77

$\triangle UVW \sim \triangle UCB$

SAS

$\frac{77}{11}=7$

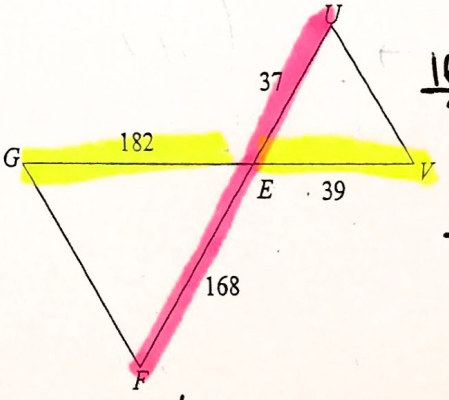




$\frac{56}{8}=7$

33)

$\angle UEV \cong \angle FEG$



$\frac{168}{37}=4.54$

$\frac{182}{39}=4.66$

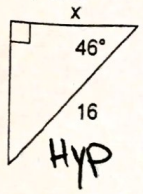
$\triangle EFG \sim$ ✗

Not similar

$\sin\theta = \frac{opp}{Hyp}$ $\cos\theta = \frac{ADJ}{Hyp}$ $\tan\theta = \frac{opp}{ADJ}$

G4: Trigonometry

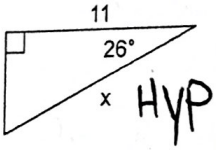
Find the missing side. Round to the nearest tenth.

34) 

$\frac{\cos 46°}{1} = \frac{X}{16}$

$X = 16(\cos 46°)$

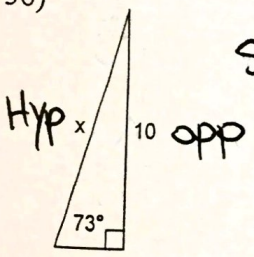
$X = 11.11$

35) 

$\frac{\cos 26°}{1} = \frac{11}{X}$

$\frac{X(\cos 26)}{\cos 26} = \frac{11}{\cos 26}$

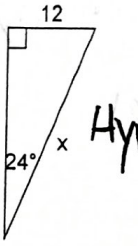
$X = 12.24$

36) 

$\frac{\sin 73°}{1} = \frac{10}{X}$

$\frac{X(\sin 73)}{\sin 73} = \frac{10}{\sin 73}$

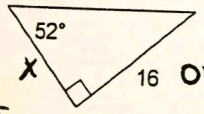
$X = 10.46$

37) 

$\frac{\sin 24°}{1} = \frac{12}{X}$

$\frac{X(\sin 24)}{\sin 24} = \frac{12}{\sin 24}$

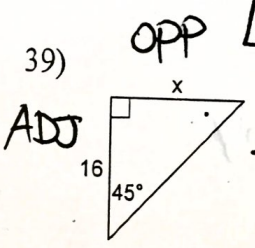
$X = 29.5$

38) 

$\frac{\tan 52°}{1} = \frac{16}{X}$

$\frac{X(\tan 52)}{\tan 52} = \frac{16}{\tan 52}$

$X = 12.5$

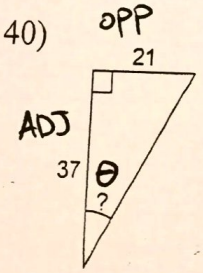
39) 

$\frac{\tan 45°}{1} = \frac{X}{16}$

$X = 16(\tan 45)$

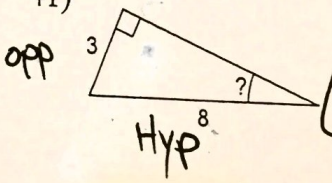
$X = 16$

Find the measure of the indicated angle to the nearest degree.

40) 

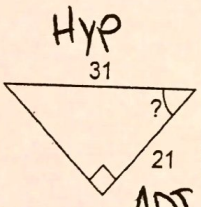
$\theta = \tan^{-1}\left(\frac{21}{37}\right)$

$\theta = 29.58°$

41) 

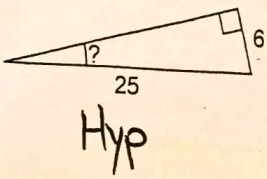
$\theta = \sin^{-1}\left(\frac{3}{8}\right)$

$\theta = 22.02°$

42) 

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

$\theta = 47.36°$

43) 

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

$\theta = 13.89°$