Geometry Review
January 2016

Name Kelly
Date: _____ Period: _____

**PART I: YOU MUST SHOW ALL WORK FOR FULL CREDIT!!!**

1.)

1

2.) $y = -\frac{1}{2}x - 5$ $m = -\frac{1}{2}$ $\perp m = 2$

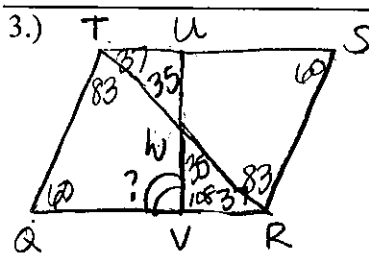
$y = mx + b$ $-4 = 12 + b$ $y = 2x - 16$

$-4 = (2)(6) + b$ $-12 - 12$

$-16 = b$

4

3.)



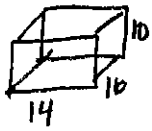

$180 - 60 - 83 = 37$

$180 - 37 - 35 = 108$

$180 - 108 = 72°$

3

4.)




$V = (14)(16)(10)$

$V = 2240$ $\frac{1680}{2240} = .75$

$100\% - 75\% = 25\%$

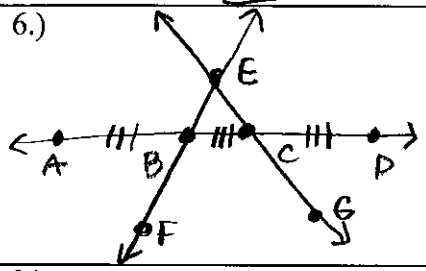
2

5.) $(x, y) \rightarrow (4x, 4y)$

dilation changes size

3

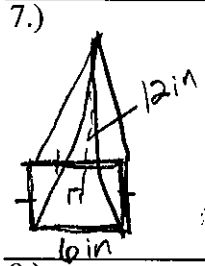
6.)




$\overline{AB} \cong \overline{DC}$

1

7.)




$V = \frac{1}{3}lwh$

$= \frac{1}{3}(6)(6)(12)$

$= 144$

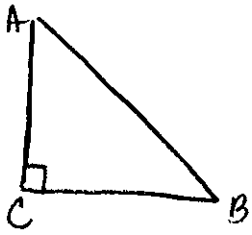
2

8.) $\triangle ABC \rightarrow \triangle DEF$

$r_{yaxis} \rightarrow r_{xaxis}$

1

9.)




$\sin A = \cos B$

4

10.)

Dilation does not affect slope - it only affects y-intercept

2

11.) $R_{90}$

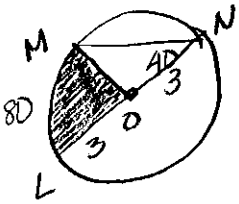
$B(4,3)$

$B'(-3,4)$

Rotation does not affect size.

4

12.)



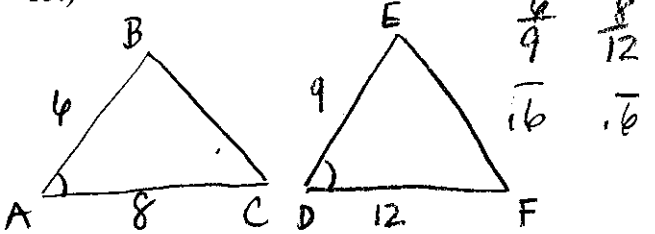

$A = \frac{n}{360}\pi r^2$ $9n = 720$

$2\pi = \frac{n}{360}\pi(3)^2$ $n = 80°$

$\frac{2}{1} = \frac{9n}{360}$ $\frac{80}{2} = 40°$

3

13.)

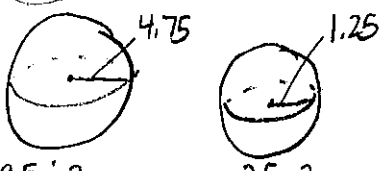



$\frac{6}{9}$ $\frac{8}{12}$

$.\overline{6}$ $.\overline{6}$

1

14.)




$9.5 \div 2$ $2.5 \div 2$

$V = \frac{4}{3}\pi(4.75)^3$ $V = \frac{4}{3}\pi(1.25)^3$

3

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

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

$=\sqrt{9+1}=\sqrt{10}$

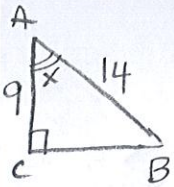
Pentagon

$n=5$

$5(\sqrt{10})=\boxed{5\sqrt{10}}$

2

16.)




$9^2+b^2=14^2$

$81+b^2=196$

$b^2=115$

$b=10.72380529$

$\frac{10.72380529}{\sin X}=\frac{14}{\sin 90}$

$\frac{14\sin X}{14}=\frac{10.72380529\sin 90}{14}$

$\sin X=.7659860925$

2nd sin

$X=49.9$

3

17.) $x^2+6x+\frac{9}{}+y^2-4y+\frac{4}{}=23+9+4$

$(x+3)^2+(y-2)^2=36$

$C=(-3,2)\ r=6$

4

18.)

$RS=\frac{2--3}{8-2}=\frac{5}{10}=\frac{1}{2}$

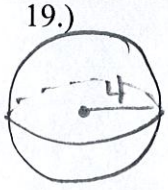
$RT=\frac{5--3}{4-2}=\frac{8}{6}=\frac{4}{3}$

neg. reciprocals

$ST=\frac{5-2}{4-8}=\frac{+3}{-4}$

1

19.)




$V=\frac{4}{3}\pi r^3$

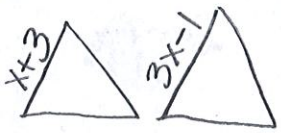
$=\frac{4}{3}\pi(4)^3$

$=268.0825731\ (.075)$

$=20.10619298=$ 20 pounds

2

20.)




$\frac{1}{2}=\frac{x+3}{3x-1}$

$3x-1=2x+6$

$-2x+1\quad -2x+1$

$x=7$

1 : 2

$GR=3x-1$

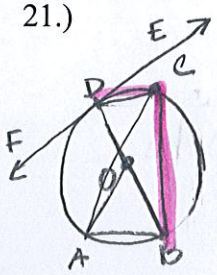
$3(7)-1$

$21-1$

20

4

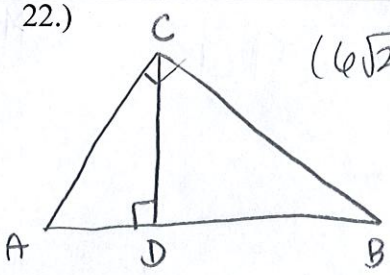
21.)




$\angle DCB$

3

22.)




$(6\sqrt{2})^2=72$

4

23.)


$C=2\pi r$

$=2\pi(10)$

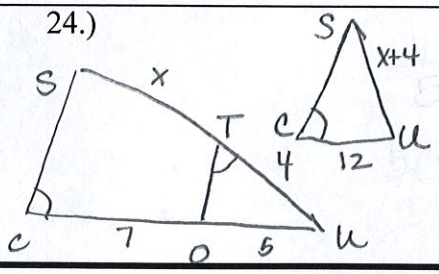
$=62.83185307$

$\frac{1060}{62.83185307}=15.91549431$

$=15$

1

24.)




$\frac{5}{x+4}=\frac{4}{12}$

$4x+16=60$

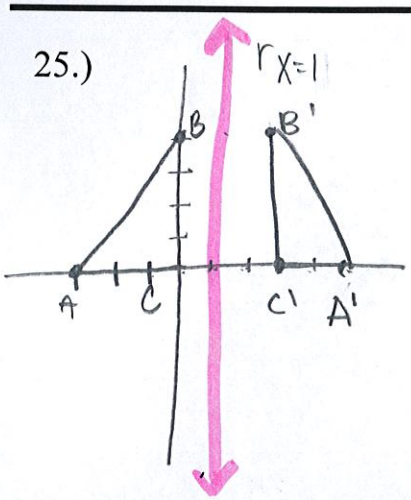
$-16\quad -16$

$4x=44$

$x=11$

3

25.)



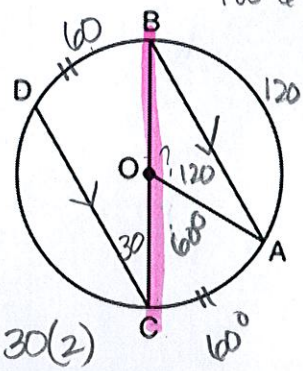

$A'(5,0)$

$B'(3,4)$

$C'(3,0)$

26.) $180-60=120$

**Part II**




$\angle AOB=120°$

$30(2)$

$60°$

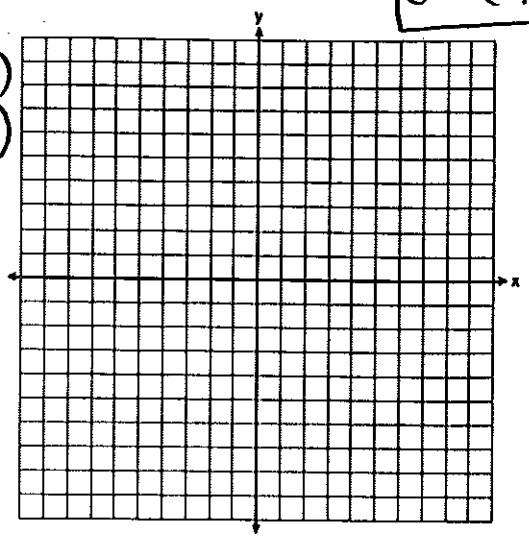
$(-2+\frac{2}{3}(4-2), 1+\frac{2}{3}(7-1))$

27.) $(-2+\frac{2}{3}(6), 1+\frac{2}{3}(6))$

$(-2+4, 1+4)$

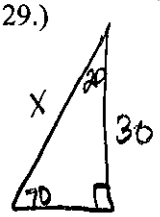
$J = (2,5)$

P(-2,1)
T(4,7)
2:1
$\frac{2}{3}$



28.) To get from $\Delta ABC$ to $\Delta A'B'C'$, there was a reflection over the y axis and then a translation down 3. Both are rigid motions so size does not change and $\Delta ABC \cong \Delta A'B'C'$

29.)




$180 - 90 - 70 = 20$

$\frac{X}{\sin 90} = \frac{30}{\sin 70}$

$\frac{X \sin 70}{\sin 70} = \frac{30 \sin 90}{\sin 70}$

$X = 31.92533317$

32ft

30.)

A: $A = \pi r^2$
$= \pi(25.5)^2$
$= 2042.820623$

$\frac{51}{2} = 25.5$

PD: $\frac{40,000}{2042.820623} = 19.58076962$

B: $A = \pi r^2$
$= \pi(37.5)^2$
$= 4417.864669$

$\frac{75}{2} = 37.5$

PD: $\frac{72,000}{4417.864669} = 16.29746617$

Petri Dish A

31.)

$3x - y = 4$
$-3x \quad -3x$

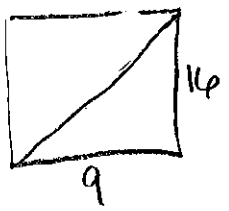
$\frac{-y}{-1} = \frac{-3x}{-1} + \frac{4}{-1}$ $(-1)(2)$

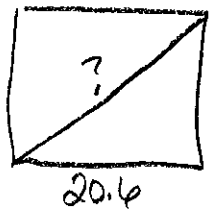
$y = 3x - 4$

$y = 3x - 8$

$D_2$

32.) **Part III**




$X = 36.6\overline{2}$

$\frac{16}{9} = \frac{X}{20.6}$

$\frac{9X}{9} = \frac{329.6}{9}$

$X = 36.6\overline{2}$

42 inches

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

$(20.6)^2 + (36.6\overline{2})^2 = c^2$

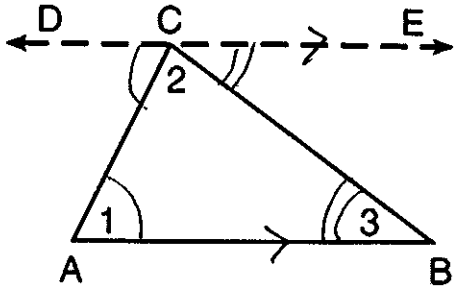
$424.36 + 1341.18716 = c^2$

$1765.54716 = c^2$

$\sqrt{1765.54716} = c$

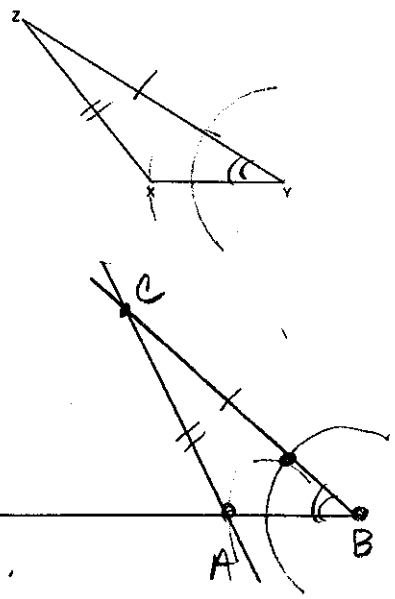
$c = 42.01841453$

33.)




| Statements | Reasons |
|---|---|
| (1) $\triangle ABC$ | (1) Given |
| (2) Through point C, draw $\overleftrightarrow{DCE}$ parallel to $\overline{AB}$. | (2) To a given line there is only one parallel line that can be drawn thru a given pt. not on the line. |
| (3) $m\angle 1 = m\angle ACD$, $m\angle 3 = m\angle BCE$ | (3) When 2 ∥ lines are cut by a transversal, alternate interior ∠s are ≅. |
| (4) $m\angle ACD + m\angle 2 + m\angle BCE = 180°$ | (4) Angles that form a straight line are supplementary. |
| (5) $m\angle 1 + m\angle 2 + m\angle 3 = 180°$ | (5) Substitution |

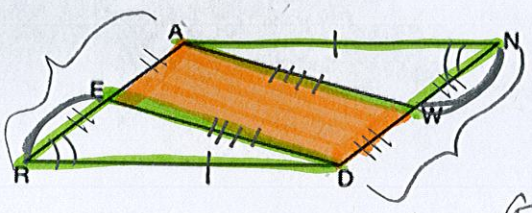
34.)




$\triangle XYZ \cong \triangle ABC$ by SAS.

**Part IV**

35.)



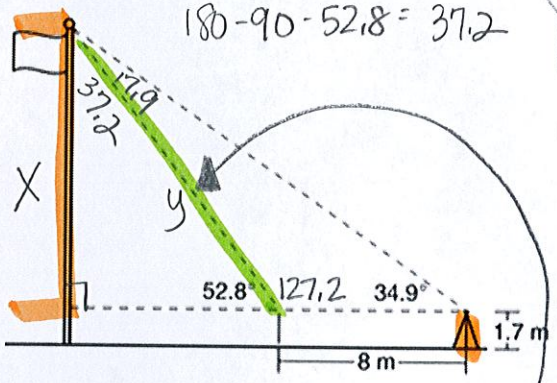

| Statement | Reason |
|---|---|
| ① ll gram ANDR $\overline{AW}$ & $\overline{DE}$ bisecting $\overline{REA}$ at pts. W & E. | ① Given |
| ② $\angle R \cong \angle N$ | ② In a ll gram, opposite $\angle$s are $\cong$. |
| ③ $\overline{AN} \cong \overline{RD}$ $\overline{AR} \cong \overline{ND}$ | ③ In a ll gram, opposite sides are $\cong$. |
| ④ $\overline{AE} \cong \overline{RE}$ $\overline{NW} \cong \overline{DW}$ | ④ A segment bisector divides a segment into 2 $\cong$ segments. |
| ⑤ $\overline{ER} \cong \overline{NW}$ | ⑤ Halves of $\cong$ quantities are $\cong$ |
| ⑥ $\triangle DRE \cong \triangle WNA$ | ⑥ SAS $\cong$ SAS |
| ⑦ $\overline{AW} \cong \overline{DE}$ | ⑦ Corresponding Parts of $\cong$ $\triangle$s are $\cong$. |
| ⑧ Quad AEDW is a llgram | ⑧ If both prs. of opposite sides are $\cong$ the quad. is a llgram. |

36.)

$180 - 52.8 = 127.2$

$180 - 127.2 - 34.9 = 17.9$

$180 - 90 - 52.8 = 37.2$




$$\frac{y}{\sin 34.9} = \frac{8}{\sin 17.9}$$

$$\frac{y \sin 17.9}{\sin 17.9} = \frac{8 \sin 34.9}{\sin 17.9}$$

$y = 14.89203981$

$$\frac{14.89203981}{\sin 90} = \frac{X}{\sin 52.8}$$

$$\frac{X \sin 90}{\sin 90} = \frac{14.89203981 \sin 52.8}{\sin 90}$$

$X = 11.86195525 + 1.7 = 13.56195525$

13.6 m