Geometry Review
January 2017

Name Key
Date: _____ Period: _____

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

1.) $y = \frac{1}{2}x + 8$ $m = \frac{1}{2}$ $\perp m = -\frac{1}{2}$ $(-2, 2)$

$y = mx + b$

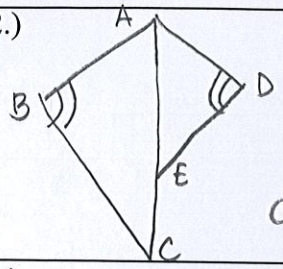
$2 = \frac{1}{2}(-2) + b$

$2 = -1 + b$ $b = 3$

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

3

2.)

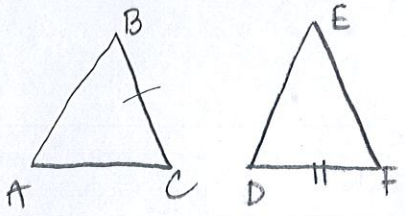


$\angle ABC \cong \angle ADE$

$\angle$ measures don't change in a dilation

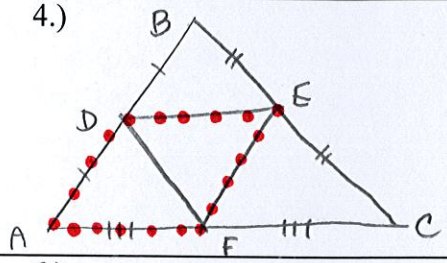
2

3.) $\triangle ABC \cong \triangle DEF$



1

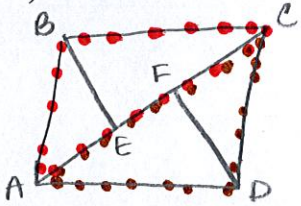
4.)



$\overline{AB} \cong \overline{AC}$

4

5.)



$\triangle ABC \cong \triangle CDA$

llgram

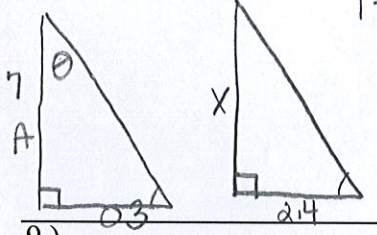
4

6.)

A dilation changes size

4

7.)



$T\frac{O}{A}$

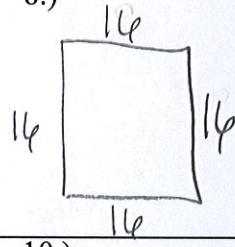
$\frac{3}{7} = \frac{2.4}{x}$ $x = 5.6$

$3x = 16.8$

$\frac{3x}{3} = \frac{16.8}{3}$

2

8.)

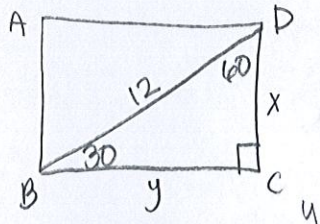


$A = 16^2$

$= 256 \text{ ft.}^2$

1

9.)



$\frac{12}{\sin 90} = \frac{x}{\sin 30}$

$x = 12 \sin 30 = 6(2) = 12$

$\frac{12}{\sin 90} = \frac{y}{\sin 60}$ 32.8

$y = 12 \sin 60 = 10.39\ldots$ (2)

2

10.)

flip then slide

3

11.)

$V = lwh$ $V = \pi r^2 h$

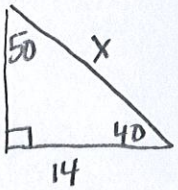
$V = (4)(4)(6)$ $= \pi(1)^2(6)$

$V = 96$ $V = 18.84955592$

$= 77.15044408$ $\Rightarrow$ 77

2

12.)



$\frac{x}{\sin 90} = \frac{14}{\sin 50}$ $x = 18.27570205$

$x \sin 50 = 14 \sin 90$

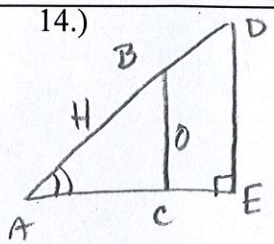
$\frac{x \sin 50}{\sin 50} = \frac{14 \sin 90}{\sin 50}$ $= 7\ 18$

3

*13.)

1

14.)

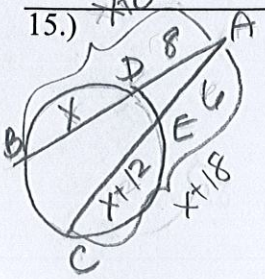


$S\frac{O}{H}$

$\frac{BC}{AB}$

3

15.) x8



$(AE)(AC) = (AD)(AB)$

$(6)(x+18) = (8)(x+8)$

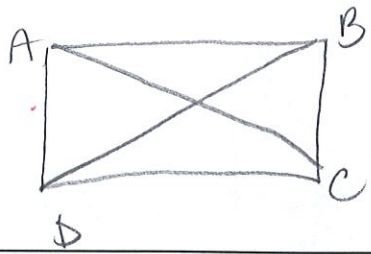
$6x+108 = 8x+64$

$-6x \quad -64 \quad -6x \quad -64$

$44 = 2x$ $\boxed{x=22}$

2

16.)



$\overline{AC} \cong \overline{BD}$

1

17.)

$n=10$ $\frac{360}{10} = 36$

$54 \div 36 = 1.5$

$162 \div 36 = 4.5$

$198 \div 36 = 5.5$

$\boxed{252 \div 36 = 7}$

4

18.) $x^2+y^2-6y+9 = -1+9$

$x^2+(y-3)(y-3) = 8$

$x^2+(y-3)^2 = 8$

$\boxed{C=(0,3)}$ $\boxed{r=\sqrt{8}=\sqrt{4}\sqrt{2}=2\sqrt{2}}$

1

19.)

$mBD = \boxed{\frac{1}{3}}$ $mAC = \frac{1-7}{2-0} = \frac{-6}{2} = \boxed{\frac{-3}{1}}$

In a rhombus diagonals are $\perp$.

3

20.) $2:3 \rightarrow \frac{2}{5}$ $M(3,5)$ $N(8,-5)$

$(3+\frac{2}{5}(8-3), 5+\frac{2}{5}(-5-5))$ $(3+2, 5+(-4))$

$(3+\frac{2}{5}(5), 5+\frac{2}{5}(-10))$ $\boxed{(5,1)}$

1

21.) $360-60 = 300°$

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

$= \frac{300}{360}\pi(8)^2$ $= \boxed{\frac{160\pi}{3}}$

4

22.) $(-5,12)$

$d = \sqrt{(-5-0)^2+(12-0)^2}$

$= \sqrt{(-5)^2+(12)^2}$

$= \sqrt{25+144}$

$= \sqrt{169} = \boxed{13}$

$(11, 2\sqrt{12})$

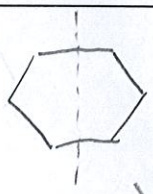
$d = \sqrt{(0-11)^2+(0-2\sqrt{12})^2}$

$= \sqrt{(-11)^2+(-2\sqrt{12})^2} = 13$

$= \sqrt{121+48} = \sqrt{169}$

3

23.)



4

24.)

$V = \frac{1}{3}\pi r^2 h$

$= \frac{1}{3}\pi(.75)^2(2)$

$= 1.178097245$ $\boxed{\approx 1.2}$

$3/2 = 1.5$

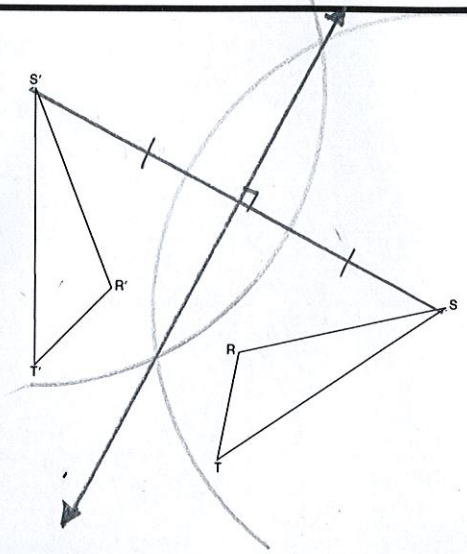
$\frac{4}{1.5} = \frac{2}{x}$

$\frac{4x}{4} = \frac{3}{4}$

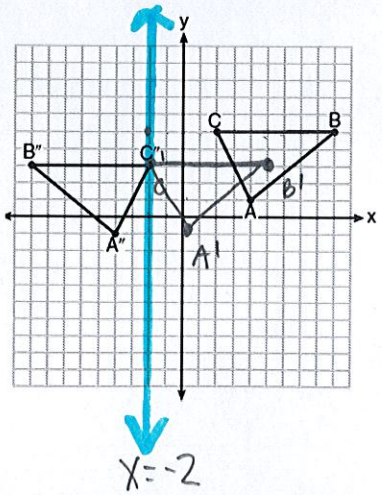
$\boxed{x=.75}$

1

25.)



26.) **Part II**

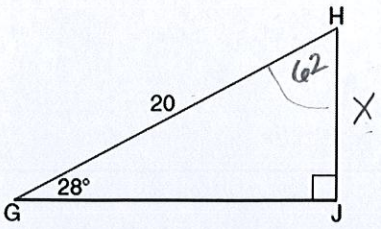


$T_{-4,-2}$

$r_{x=-2}$

$x=-2$

27.)



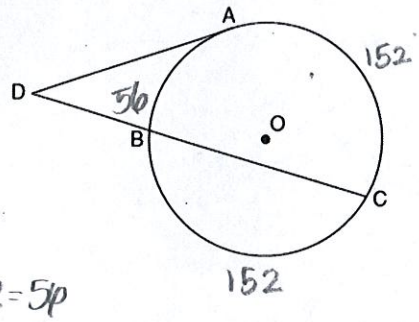
$180-90-28=62$

(H) $\sin 28 = \frac{HJ}{20} = \frac{O}{H}$

(M) $\cos 62 = \frac{HJ}{20} = \frac{A}{H}$

Both are correct b/c in a right $\triangle$ the sine of 1 non-right $\angle$ is = to the cos of the other non-right $\triangle$.

28.)



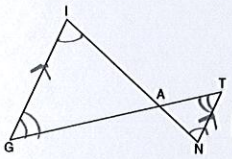
$360-152-152=56$

$\angle D = \frac{\overset{\frown}{AC} - \overset{\frown}{AB}}{2}$

$= \frac{152-56}{2}$

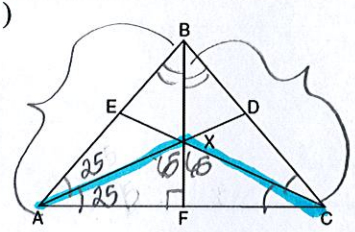
$= \boxed{48°}$

29.)



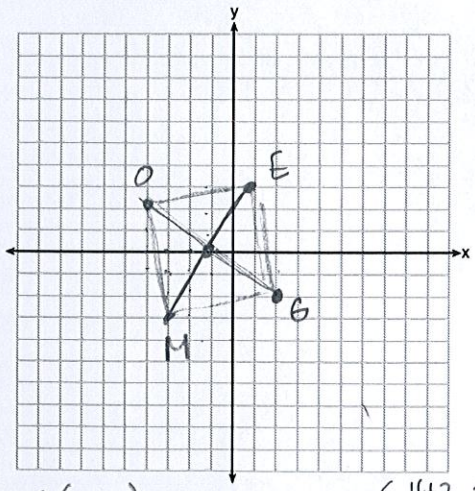
Statement	Reason
(1) $\overline{GI} \parallel \overline{NT}$	(1) Given
(2) $\angle I \cong \angle G$, $\angle T \cong \angle N$	(2) When 2 $\parallel$ are cut by a transversal, alt. interior $\angle$s are $\cong$.
(3) $\triangle GIA \sim \triangle TNA$	(3) $AA \cong AA$

30.)



$\boxed{130°}$

31.)



$E(1,3)$

$M(-3,-3)$

$O(-4,2)$ $G(2,-2)$

$m_{OG} = \frac{-2-2}{2-4} = \frac{-4}{6} = -\frac{2}{3}$

$m_{EM} = \frac{3}{2}$

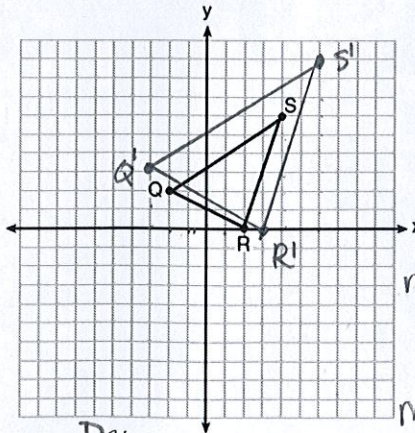
$mp = \left(\frac{-4+2}{2}, \frac{2+-2}{2}\right)$

$= \left(\frac{-2}{2}, \frac{0}{2}\right)$

$= (-1,0)$

32.)

Part III



A dilation preserves slope.

$m_{QR} = \frac{2-0}{-2-2} = \frac{2}{-4} = \boxed{\frac{-1}{2}}$

$m_{Q'R'} = \frac{3-0}{-3-3} = \frac{3}{-6} = \boxed{\frac{-1}{2}}$

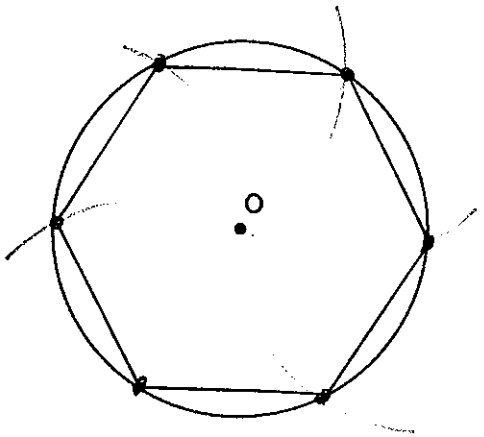
$Q(-2,2) \xrightarrow{D_{3/2}} Q'(-3,3)$

$R(2,0) \longrightarrow R'(3,0)$

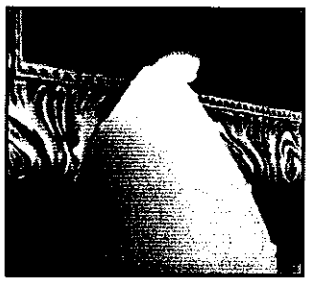
$S(4,6) \longrightarrow S'(6,9)$

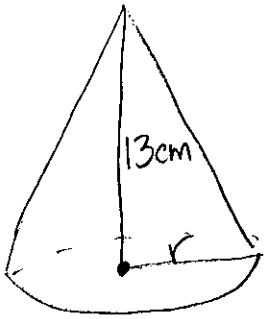
$\overline{QR} \parallel \overline{Q'R'}$ b/c they have the same slope.

33.)



34.)





$C = 2\pi r$

$\frac{31.416}{2\pi} = \frac{2\pi r}{2\pi}$ $\quad r = 5.000011692$ cm

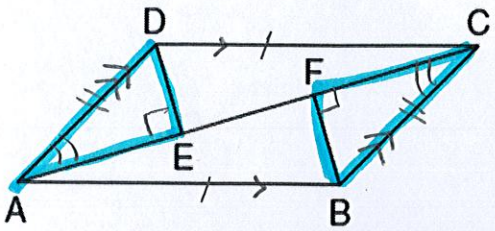
$V = \frac{1}{3}\pi r^2 h$

$= \frac{1}{3}\pi (5.000011692)^2 (13)$

$= 340.3407958$

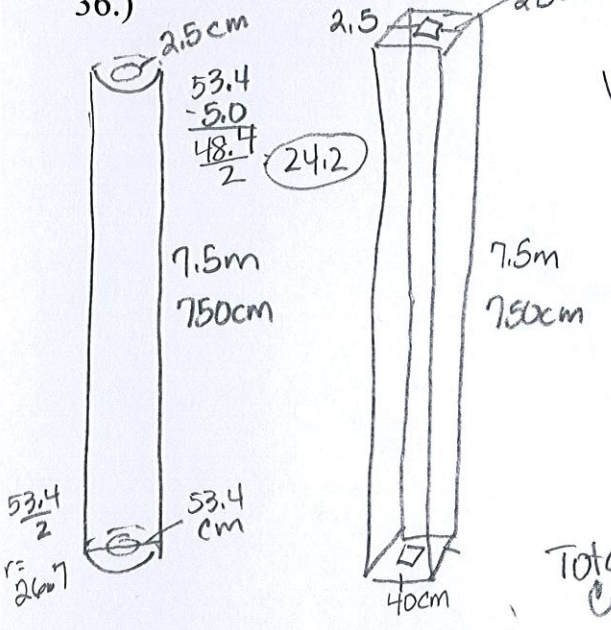
340 cm^3

35.)



Statement	Reason
① $\overline{AB} \cong \overline{CD}$, $\overline{AB} \parallel \overline{CD}$, $\overline{BF}$ & $\overline{DE} \perp \overline{AC}$ at F & E	① Given
② ABCD is a llgram	② If opposite sides are $\cong$ & ll the quad is a llgram.
③ $\overline{AD} \cong \overline{CB}$	③ In a llgram, opposite sides are $\cong$.
④ $\angle DEA$ & $\angle BFC$ are right $\angle$s	④ $\perp$ lines form right $\angle$s
⑤ $\angle DEA \cong \angle BFC$	⑤ All right $\angle$s are $\cong$
⑥ $\overline{AD} \parallel \overline{BC}$	⑥ In a llgram, opposite sides are ll.
⑦ $\angle DAE \cong \angle BCF$	⑦ When 2 ll lines cut by a transversal, alt. int. $\angle$s are $\cong$.
⑧ $\triangle DAE \cong \triangle BCF$	⑧ AAS $\cong$ AAS
⑨ $\overline{AE} \cong \overline{CF}$	⑨ Corresponding parts $\cong$ $\triangle$s are $\cong$.

36.)



$d = 2.7 g/cm^3$ $.38 per kg

$V_{outside\ cyl.} = \pi r^2 h$
$= \pi (26.7)^2 (750)$
$= 1679707.49$

$V_{inside\ cyl.} = \pi r^2 h$
$= \pi (24.2)^2 (750)$
$= 1379881.741$

Total Volume Cylinder $= 299825.749\ cm^3$

$D = \frac{m}{V}$

$2.7 = \frac{m}{299825.749}$

$m = 809529.5223 g$

$809.5295223 kg (.38) = \$307.62$

$V_{outside\ prism} = lwh$
$= (750)(40)(40)$
$= 1,200000$

$V_{inside\ prism} = lwh$
$= (750)(35)(35)$
$= 918750$

Total Volume Prism $= 281250\ cm^3$

$D = \frac{m}{V}$

$2.7 = \frac{m}{281250}$

$m = 759375 g$

$759.375 (.38) = \$288.56$

7.5m = 750 cm

KHDUDCM

KHDUDCM

Rectangular is cheaper

over

(36) 307.62
−288.56

$19.06 savings