Geometry
Practice Regents Exam Answer Sheet

Name: ~~Regine~~ key

Regents Exam: Jun '15

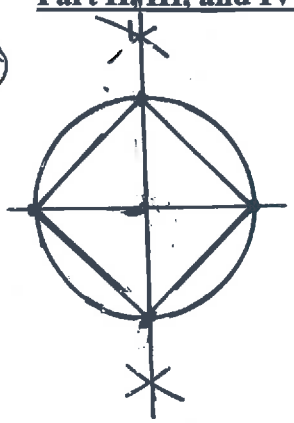
Part I

1. 4	5. 3	9. 1	13. 4	17. 1	21. 4	25. X
2. 4	6. 2	10. 1	14. 2	18. 1	22. 1	26. X
3. 3	7. 3	11. 3	15. 3	19. 2	23. 2	27. X
4. 4	8. 1	12. 4	16. 2	20. 1	24. 3	28. X

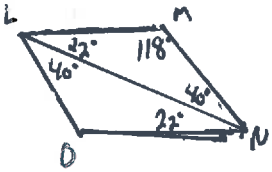
Part II, III, and IV (Use this space and the back to show work for parts II, III, and IV)

II

(25)



(26)

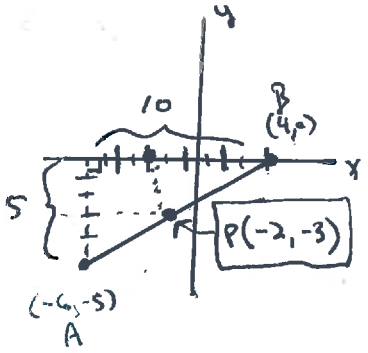


① $\overline{LM} \parallel \overline{ON}$ so $m\angle MLN = 22°$ because alt. int $\angle$'s are $\cong$.

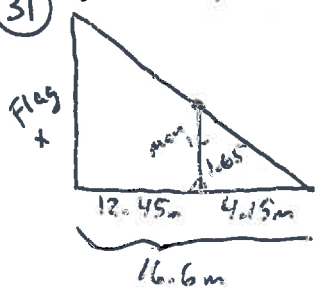
② $m\angle MNL = 40°$ because the $\angle$'s of $\triangle LMN$ add to 180°.

③ So, $m\angle OLN = 40°$ because $\overline{OL} \parallel \overline{MN}$ and alt. int $\angle$'s are $\cong$.

(27) AP:PB = 2:3 ← part to part; 5 total parts.



(31) Similar $\triangle$'s.



$\frac{x}{1.65} = \frac{16.6}{4.15}$

$4.15x = 27.39$

$x = 6.6m$

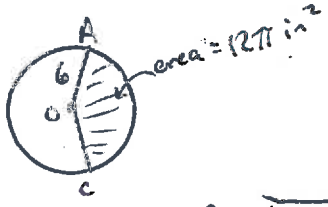
(28)

$\sin x = \frac{4.5}{11.75}$

$x = \sin^{-1}\left(\frac{4.5}{11.75}\right)$

$x \cong 23°$

(29)



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

$12\pi = \frac{n}{360} \cdot \pi 6^2$

$12 = \frac{n}{360} \cdot 36$

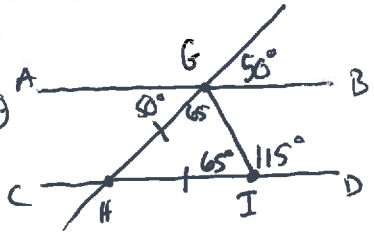
$12 = \frac{n}{10}$

$n = 120°$

(30) A line reflection is a rigid motion that preserves segment length and angle measure.

III

(32)



① $m\angle GIC = 65°$ because $\angle DIG$ Supp. to $\angle GIC$.

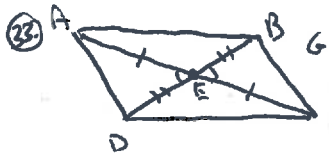
② $m\angle HGI = 65°$ because $\angle$'s opp. $\cong$ sides of a $\triangle$ are $\cong$.

③ $m\angle AGH = 50°$ because vert. $\angle$'s are $\cong$.

④ $m\angle AGI = 115°$ by angle addition

⑤ $\overline{AB} \parallel \overline{CD}$ because alt. int $\angle$'s are $\cong$.

(33)



G: $\parallel$-gram ABCD

P: $\triangle AED \cong \triangle CEB$

① Given

② $\overline{AE} \cong \overline{CE}$, $\overline{DE} \cong \overline{BE}$ } Diags of a $\parallel$-gram bisect each other.

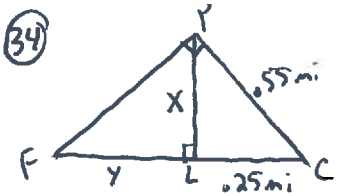
③ $\angle AED \cong \angle CEB$ } vert. $\angle$'s $\cong$

④ $\triangle AED \cong \triangle CEB$ } SAS.

A rotation of 180° around point E will map $\triangle AED$ onto $\triangle CEB$.

IV

(34)



(a) $x^2+(.25)^2=(.55)^2$

$x^2+.0625=.3025$

$x^2=.24$

$x=.4898979486$ mi.

$x \approx 0.49$ miles

(b) $\frac{y}{.49}=\frac{.49}{.25}$ Alt. Ratio

$.25y=.2401$

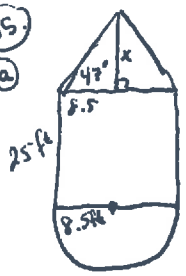
$y=.96$ miles.

which is less than 1.5 miles.

No, Gerald is incorrect.

(35)

(a)



Cone:

$\tan(47)=\frac{x}{8.5}$

$x=8.5\tan(47°)$

$x=9.115134035$

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

$=\frac{1}{3}\pi(8.5)^2(8.5\tan(47°))$

$=689.6512514$

Cylinder

$V=\pi r^2 h$

$=\pi(8.5)^2(25)$

$=5674.501731 ft^3$

Hemisphere

$V=\frac{1}{2}\cdot\frac{4}{3}\pi r^3$

$=\frac{2}{3}\pi(8.5)^3$

$=1286.220392 ft^3$

total volume:

$V=7{,}650\ ft^3$

(b) 85% of the volume

$=(.85)(7650)$

$=6502.5\ ft^3$

weight:

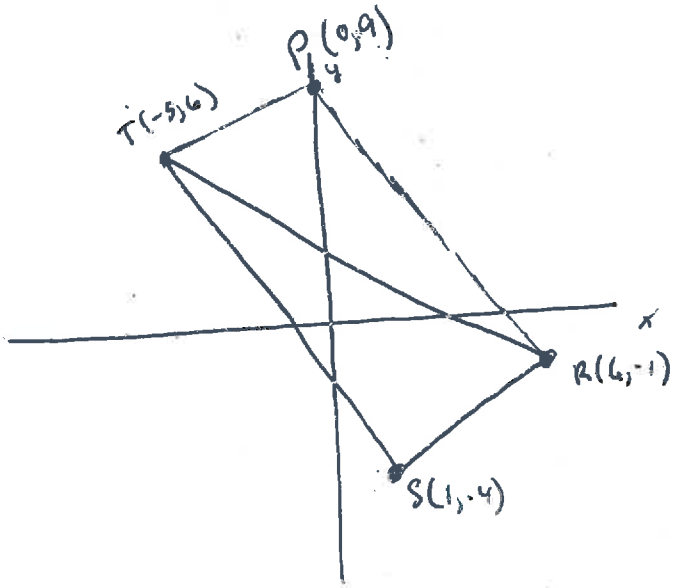
$\frac{62.4 \text{ lbs}}{1 ft^3}=\frac{x \text{ lbs}}{6502.5 ft^3}$

$x=(62.4)(6502.5)$

$=405{,}756 \text{ lbs}.$

the water will exceed the 400,000 lb weight limit.

(36)



(a) Slope $\overline{TS}=\frac{6--4}{-5-1}=\frac{10}{-6}=\frac{5}{-3}$

Slope $\overline{RS}=\frac{-1--4}{6-1}=\frac{3}{5}$

neg. reciprocals so, $\overline{TS}\perp\overline{RS}$

$\perp$ lines form Rt $\angle$'s, so $\triangle RST$ is a Rt $\triangle$.

(b) P(0,9)

(c) Slope $\overline{TP}=\frac{9-6}{0--5}=\frac{3}{5}$

Slope $\overline{PR}=\frac{9--1}{0-6}=\frac{10}{-6}=\frac{5}{-3}$

So, $\overline{TP}\perp\overline{PR}$, $\overline{TP}\perp\overline{TS}$ and $\overline{PR}\perp\overline{SR}$.

this makes $\angle$'s T, P, R and S all right $\angle$'s.

Quad. TPRS is a Rectangle because a quad w/ 4 Rt $\angle$'s is a rectangle.