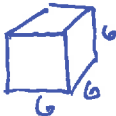


Regents Exam: Aug '15

Part I

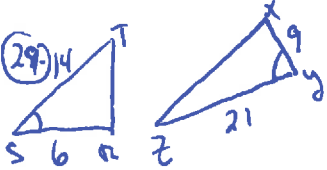
- | | | | | | | |
|-------------|-------------|--------------|--------------|--------------|--------------|--------------|
| 1. <u>2</u> | 5. <u>1</u> | 9. <u>3</u> | 13. <u>2</u> | 17. <u>4</u> | 21. <u>4</u> | 25. <u>X</u> |
| 2. <u>3</u> | 6. <u>4</u> | 10. <u>1</u> | 14. <u>4</u> | 18. <u>3</u> |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

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

25 

Density = $\frac{m}{V}$
 $= \frac{137.8g}{216 \text{ cm}^3}$
 $= 0.638 \text{ g/cm}^3$

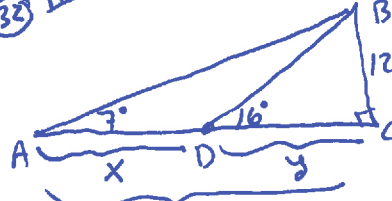
Cube is made of Ash.



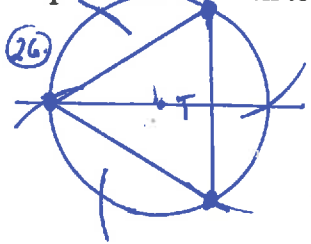
$\triangle RST \sim \triangle XYZ$?

Check $\frac{ST}{YZ} = \frac{RS}{XY}$
 $\frac{14}{21} = \frac{6}{9}$
 $9(14) = 6(21)$
 $126 = 126$

yes, by SAS similarity.

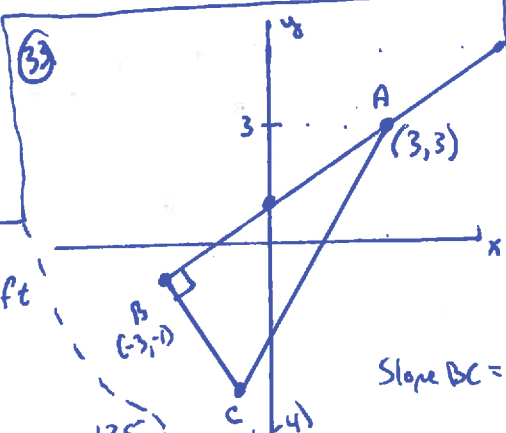
32 

$\tan(16) = \frac{125}{y}$
 $y = \frac{125}{\tan(16)} \approx 435.9 \text{ ft}$



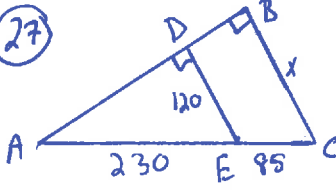
30 $\triangle ABC$ can be rotated around the point $(0,0)$ by 180° to map to $\triangle XYZ$.

Rotation is a rigid motion that preserves segment length + angle measure. therefore the \triangle s are \cong .

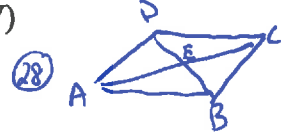
33 

Slope $BC = \frac{-4 - 0}{-1 - -3} = \frac{-4}{-2} = 2$
 \perp slope = $\frac{2}{3}$ (x=9.5 also works)

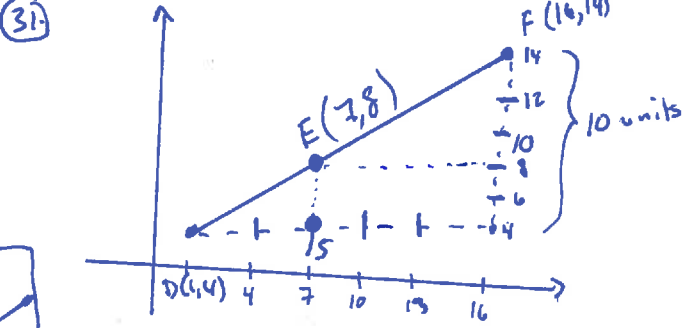
$\tan(7) = \frac{125}{z}$
 $z = \frac{125}{\tan(7)} \approx 1018.0 \text{ ft}$
 $x = z - y = 582 \text{ ft}$

27 

$\triangle ADE \sim \triangle ABC$
 $\frac{AE}{AC} = \frac{DE}{BC}$
 $\frac{120}{230} = \frac{95}{x}$
 $230x = 37800$
 $x = 164 \text{ yds}$

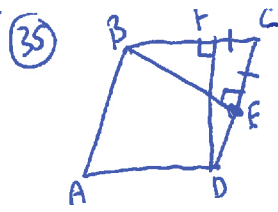


- 28
- Given \parallel -ogram $ABCD$
 - $\overline{DE} \parallel \overline{AB}$ because opp. sides of \parallel -ogram are \parallel .
 - $\angle ACD \cong \angle CAB$ because \parallel lines cut by trans. make Alt. int \angle 's \cong .

31 

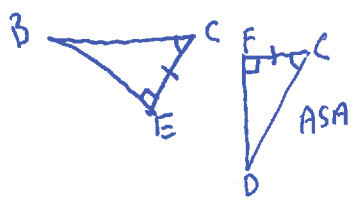
$DE : EF = 2 : 3$
 part to part
 whole is 5 parts
 $\frac{15}{5} = 3$ $\frac{10}{5} = 2$

- 34
- F maps to C. So F' is at C. translation preserves length, so \overline{DF} maps to \overline{AC} . Since $\overline{DF} \cong \overline{AC}$.
 - Yes, since a reflection preserves distance, we get $\overline{DE} \cong \overline{AB}$ and $\overline{EF} \cong \overline{BC}$. So, \triangle 's are \cong by SSS.



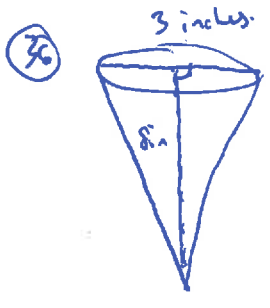
- ① // -ogram ABCD
 $BE \perp CE$
 $DF \perp BF$
 $CE \cong CF$

- ⑥ $\overline{BC} \cong \overline{CD}$ ④ CPCTC
 ⑦ Rhombus ABCD ⑦ // -ogram w/ a pair of consecutive sides \cong is a rhombus.



- ② $\angle CFD, \angle BEC$ are rt \angle 's ② \perp lines form rt \angle 's
 ③ $\angle CFD \cong \angle BEC$ ③ rt \angle 's are \cong
 ④ $\angle C \cong \angle C$ ④ reflexive
 ⑤ $\triangle CFD \cong \triangle BEC$ ⑤ ASA

- $\overline{OR} =$
 ⑦ $\overline{BA} \cong \overline{CD}$ ⑦ opp. sides // -ogram
 $\overline{BC} \cong \overline{AD}$
 ⑧ $\overline{AB} \cong \overline{BC} \cong \overline{CD} \cong \overline{AD}$ ⑧ transitive
 ⑨ Rhombus ABCD ⑨ Rhombus has 4 \cong sides.



② $V = \frac{1}{3} \pi r^2 h$
 $= \frac{1}{3} \pi (1.5)^2 (8)$
 $= 18.85 \text{ in}^3$
 100 candles $\approx 1,885 \text{ in}^3$

⑤ weight:
 $\frac{.52 \text{ oz}}{\text{in}^3} = \frac{x \text{ oz}}{1885 \text{ in}^3}$
 $x = (.52)(1885)$
 $= 980.2 \text{ oz}$

Cost:
 $\frac{\$.10}{\text{oz}} = \frac{\$ x}{980.2 \text{ oz}}$
 $x = (.10)(980.2)$
 $= \$98.02$

③ Profit = Revenue - Cost

Revenue:
 $(\$1.95)(100 \text{ candles}) = \195

Cost:
 $\$37.83 + \$98.02 = \$135.85$

Profit = $195 - 135.85$
 $= \$59.15$