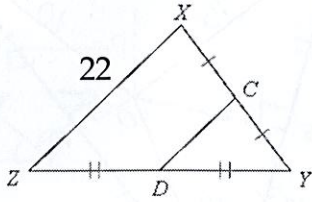


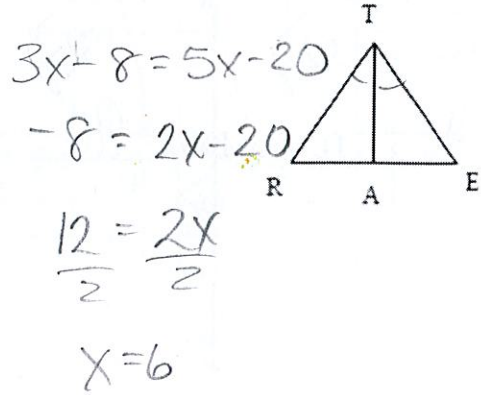
Math 3 Unit 4 Review

Name: Key F'18

11 1. Find CD



$x=6$ 2. Given $\triangle RTE$, TA is an angle bisector. The $m\angle RTA = (3x - 8)^\circ$ and $m\angle ETA = (5x - 20)^\circ$. Find the value of x .



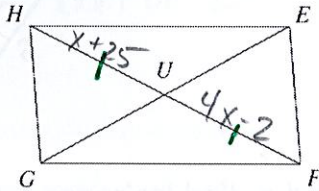
$HF=68$ 3. Given $HEFG$ is a parallelogram, $UH = x+25$ and $UF = 4x-2$. Find HF .

$4x - 2 = x + 25$

$3x - 2 = 25$

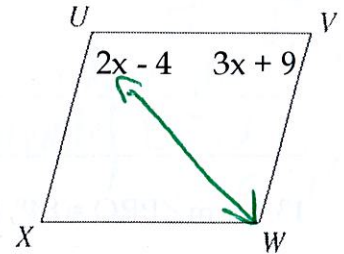
$3x = \frac{27}{3}$

$x = 9$



$HF = (9) + 25 + 4(9) - 2 = 68$

$\angle W = 66^\circ$ 4. Given $\square UVXW$, find $m\angle W$.



$2x - 4 + 3x + 9 = 180$

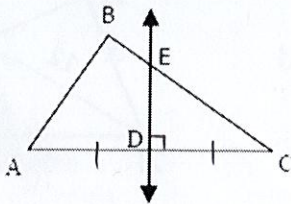
$5x + 5 = 180$

$5x = 175$

$x = 35$

$\angle U = \angle W = 2(35) - 4 = 66^\circ$

$\overline{AD} = 42$ 5. Given ED is a perpendicular bisector, and $AD = 6y+6$ and $DC = 9y-12$, Find the length of AD .



$AD = 6(6) + 6$

$6y + 6 = 9y - 12$

$6 = 3y - 12$

$18 = 3y$

$y = 6$

0.2 kg/in^3 6. Given a **triangular prism** with a base of 5in, a height of 10in, and a length of 8in, and a weight of 40kg, find the **density** of the figure.

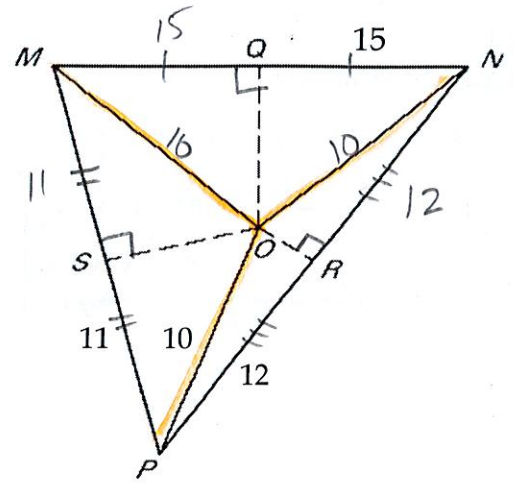
$D = \frac{m}{V} = \frac{40}{200} = 0.2 \text{ kg/in}^3$

$V = \frac{1}{2}bh\ell = \frac{1}{2}(5)(10)(8) = 200$

In the diagram, the perpendicular bisectors (shown with dashed segments) of $\triangle MNP$ meet at point O —the circumcenter. Find the indicated measure.

7. $MO = \underline{10}$ 8. $MN = \underline{30}$ 9. $NR = \underline{12}$

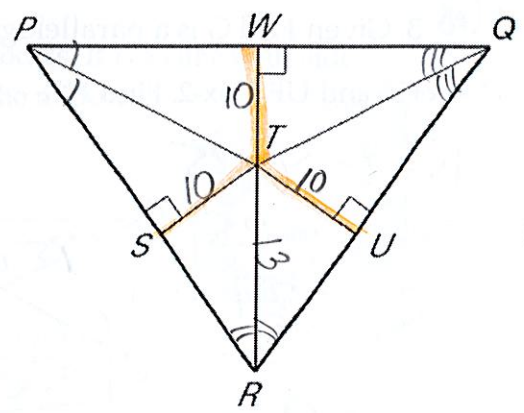
10. $SM = \underline{11}$ 11. $m\angle MSO = \underline{90^\circ}$



Point T is the incenter of $\triangle PQR$.

10 12. If $WT = 10$ and $RT = 13$, what is the value of UT ?

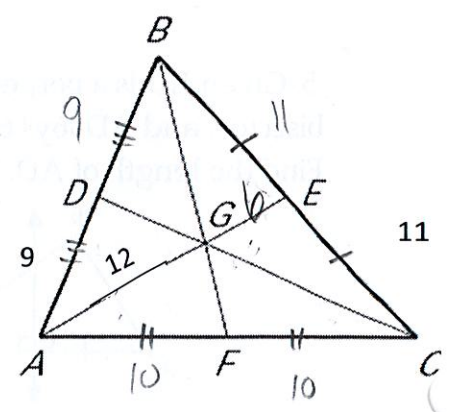
42° 13. If $m\angle PRQ = 84^\circ$, then what is the $m\angle PRT$?



Point G is the centroid of $\triangle ABC$, $AC = 20$. Find the length of each segment.

14. $DB = \underline{9}$ 15. $GE = \underline{6}$ 16. $AE = \underline{18}$

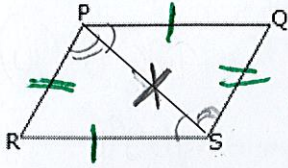
17. $BA = \underline{18}$ 18. $BC = \underline{22}$ 19. $AF = \underline{10}$



20. Complete the following proof.

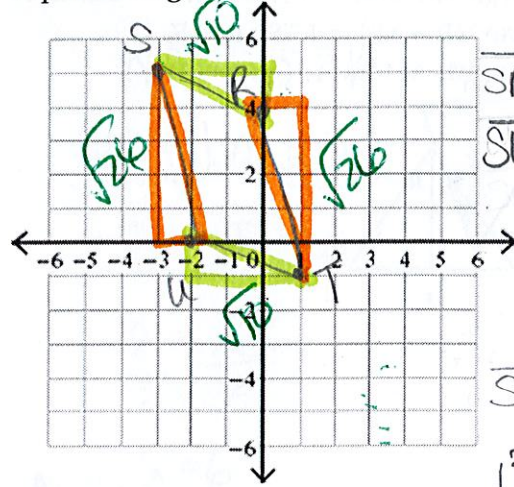
Given: $\angle QPS \cong \angle RSP$, $\angle QSP \cong \angle RPS$

Prove: PQSR is a parallelogram.



Statements	Reasons
1. $\angle QPS \cong \angle RSP$ $\angle QSP \cong \angle RPS$	1. Given
2. $\overline{PS} \cong \overline{PS}$	2. Reflexive Property
3. $\triangle PQS \cong \triangle SRP$	3. ASA
4. $\overline{SQ} \cong \overline{RP}$	4. CPCTC
5. $\overline{PQ} \cong \overline{SR}$ $\overline{PR} \cong \overline{QS}$	5. CPCTC
6. PQSR is a parallelogram	6. def of \square

21. Prove the quadrilateral with the coordinates R(0,4), S(-3,5), T(1,-1) and U(-2,0) is a parallelogram.



Slopes
 $\overline{SR} = \overline{UT} = -\frac{1}{3}$
 $\overline{SU} = \overline{RT} = -5$

lengths
 $\overline{SR} \cong \overline{UT}$
 $1^2 + 3^2 = c^2$
 $10 = c^2$
 $c = \sqrt{10}$

$\overline{SU} \cong \overline{RT}$
 $5^2 + 1^2 = c^2$
 $26 = c^2$
 $c = \sqrt{26}$

Since opposite sides are congruent & parallel RSTU is a \square

22. To completely cover a spherical ball, a ball company uses a total volume of $972\pi \text{ in}^3$ of material. What is the maximum surface area the ball can have?

(Note: Surface area of a sphere = $4\pi r^2$. Volume of a sphere = $\frac{4}{3}\pi r^3$.)

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

$$972\pi = \frac{4}{3}\pi r^3$$

$$729 = r^3$$

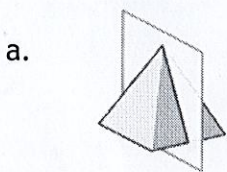
$$r = 9$$

$$SA = 4\pi r^2$$

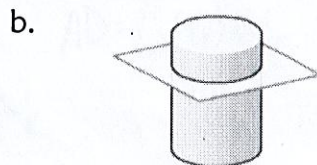
$$= 4\pi(9)^2$$

$$= 324\pi \text{ in}^2$$

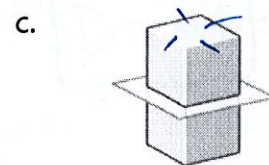
23. Classify the shape created by the cross section.



triangle



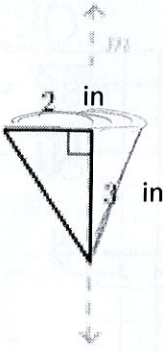
circle



square

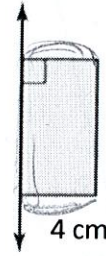
24. Name the 3D shape that will result from **rotating** the 2D figure along the line, **then** find its volume. Round to the **hundredths** place.

a.



$$\begin{aligned}
 V &= \frac{1}{3} \pi r^2 h \\
 &= \frac{1}{3} \pi (2)^2 (3) \\
 &= 4\pi
 \end{aligned}$$

b.



10 cm

4 cm

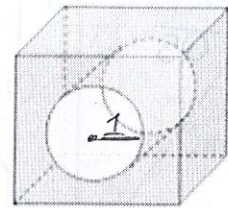
$$\begin{aligned}
 V &= \pi r^2 h \\
 &= \pi (4)^2 (10) \\
 &= 160\pi
 \end{aligned}$$

Shape: Cone Volume: 12.57 in³

Shape: Cylinder Volume: 502.65 cm³

25. A toy manufacture has designed a new piece for use in building models. It is a cube with side length 5 inches and it has a 2-inch diameter circular hole cut through the middle.

a. What is the volume of a single toy? Round to the hundredths place.



$$V_{\text{cube}} = s^3 = 5^3 = 125 \text{ in}^3$$

$$\begin{aligned}
 V_{\text{cylinder}} &= \pi r^2 h = \pi (1)^2 (5) \\
 &= 15.71 \text{ in}^3
 \end{aligned}$$

$$\begin{array}{r}
 125.00 \\
 - 15.71 \\
 \hline
 109.29 \text{ in}^3
 \end{array}$$

b. If the plastic used to create the piece costs \$0.11 per cubic inch, how much would one toy cost?

$$109.29 (.11) = \boxed{\$12.02 / \text{toy}}$$