Chapter 8 Review Name ______________________

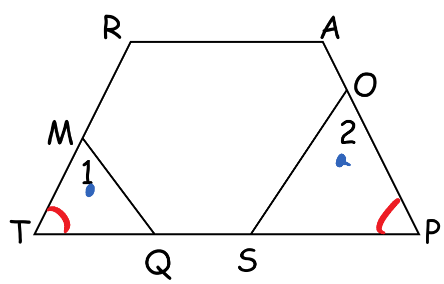
Honors Geometry

1. Given: TRAP is an isosceles trapezoid with bases $\overline{RA}$ and $\overline{TP}$

   M is the midpoint of $\overline{TR}$

   $\angle 1 \cong \angle 2$

   Prove: $SP \cdot RM = TQ \cdot OP$



1. Trap.	1. Given
2. M is midpt of of $\overline{TR}$	2 Given
3. $\overline{RM} \cong \overline{MT}$	3. Def. of midpt
4. $\measuredangle 1 \cong \measuredangle 2$	4. Given
5. $\measuredangle T \cong \measuredangle P$	5. If isos trap → lower base $\measuredangle$'s $\cong$
6. $\Delta TMQ \sim \Delta POS$	6. AA~
7. $\frac{MT}{OP} = \frac{TQ}{SP}$	7. CSSTP
8. $OP \cdot TQ = SP \cdot MT$	8. MEPT
9. $OP \cdot TQ = SP \cdot MR$	9. Substitution

2. A radio antenna that is 100 m tall casts an 80-m shadow. At the same time, a nearby telephone pole casts a 16-m shadow. Find the height of the telephone pole.

$\frac{100}{x} = \frac{80}{16}$

$80x = 1600$

$\boxed{x = 20}$

3. Find the 2nd proportional if the 1st, 3rd, and 4th are 6, 8, and 9.

$\frac{6}{x} = \frac{8}{9}$ $8x = 54$ $\boxed{x = \frac{27}{4}}$

4. Find the geometric and arithmetic mean between 3 and 9.

$\frac{3}{x} = \frac{x}{9}$ $x^2 = 27$ $\boxed{x = \pm 3\sqrt{3}}$

A.M. $\frac{3+9}{2} = \boxed{6}$

5. 8 is the mean proportional between 3 and what number?

$\frac{3}{8} = \frac{8}{x}$

$3x = 64$

$\boxed{x = \frac{64}{3}}$

6. If mx – ny = py + qx, find the ratio of x to y.

$mx - qx = py + ny$

$\frac{x(\cancel{m-q})}{y(\cancel{m-q})} = \frac{\cancel{y}(p+n)}{\cancel{y}(m-q)}$

$\boxed{\frac{x}{y} = \frac{p+n}{m-q}}$

7. If $\frac{8}{2x-3y} = \frac{5}{x+2y}$, find the ratio of x to y.

$8(x+2y) = 5(2x-3y)$

$8x + 16y = 10x - 15y$

$\frac{31\cancel{y}}{2\cancel{y}} = \frac{\cancel{2}x}{\cancel{2}y}$

$\boxed{\frac{x}{y} = \frac{31}{2}}$

8. A scale model of the Titanic is 18 ½ inches long. The scale is 1:570. To the nearest foot, how long was the Titanic?

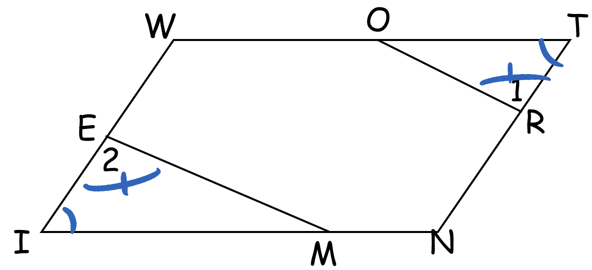
$\frac{18.5}{x} = \frac{1}{570}$

$x = 10545$

879 ft

9. Given: WINT is a parallelogram
$\angle 1 \cong \angle 2$

Prove: IE • TO = TR • IM



1. WINT is a ▱	1 Given
2. ∡1 ≅ ∡2	2. Given
3. ∡I ≅ ∡T	3. If ▱ → opp. ∡'s ≅
4 △EIM ~ △TRO	4. AA ~
5. $\frac{IE}{TR} = \frac{IM}{TO}$	5. CSSTP
6. IE · TO = TR · IM	6. MEPT

10. Answer Always, Sometimes, or Never:
a. If 2 triangles are similar, then they are congruent. S
b. If 2 triangles are congruent, then they are similar. A
c. Two squares are similar to each other. A
d. Two rhombi are similar to each other. S
e. If two quadrilaterals are similar, the ratio of their perimeters is equal to the ratio of their corresponding sides. A