Name: _____

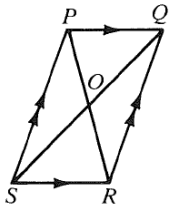
Sheet 1291: Cumulative Review Chapters 4–12

Chapters 4–7

Complete each statement with the word *always*, *sometimes*, or *never*.

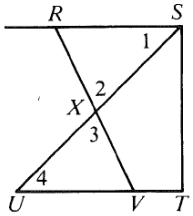
1. A square is _____ a rhombus.
2. The inverse of a true statement is _____ true.
3. Similar figures are _____ congruent.
4. An acute triangle and an obtuse triangle are _____ similar.
5. The base angles of an isosceles trapezoid are _____ congruent.

Refer to the diagram at the right. Tell whether each statement *must* be true.



6. $\overline{PQ} \cong \overline{SR}$ and $\overline{PS} \cong \overline{QR}$
7. $\angle RSP \cong \angle PQR$
8. $\angle SPQ \cong \angle PQR$
9. $\angle SPQ$ and $\angle PQR$ are supp. ∡.
10. $\overline{PR} \perp \overline{SQ}$
11. $\overline{SO} \cong \overline{OQ}$
12. $\overline{PS} \cong \overline{SR}$

13. Refer to the diagram below.

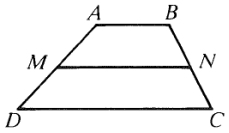


Supply the reasons.
Given: $\overline{ST} \perp \overline{RS}$; $\overline{ST} \perp \overline{UT}$; $\overline{RS} \cong \overline{UV}$
Prove: $\overline{RV}$ and $\overline{US}$ bisect each other.

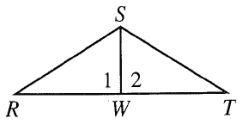
Proof:
1. $\overline{ST} \perp \overline{RS}$; $\overline{ST} \perp \overline{UT}$
2. $\overline{RS} \parallel \overline{UT}$
3. $\angle 1 \cong \angle 4$
4. $\angle 2 \cong \angle 3$
5. $\overline{RS} \cong \overline{UV}$
6. $\triangle SXR \cong \triangle UXV$
7. $\overline{RX} \cong \overline{VX}$; $\overline{SX} \cong \overline{UX}$
8. $\overline{RV}$ and $\overline{US}$ bisect each other.

$\overline{MN}$ is the median of trapezoid *ABCD*.

14. If $AM = 3$ and $BN = 2$, then $MD =$ ___?___ and $NC =$ ___?___.
15. If $AB = 10$ and $DC = 14$, then $MN =$ ___?___.



16. If $\overline{SW}$ is an altitude of $\triangle RST$, then $m\angle 2 =$ ___?___.
17. If $\overline{SW}$ is a median of $\triangle RST$, then ___?___ $\cong$ ___?___.
18. If S is equidistant from R and T, then S lies on the ___?___ of $\overline{RT}$.



19. The lengths of two sides of a triangle are 10 and 13. The length of the third side must be greater than _?_, but less than _?_.

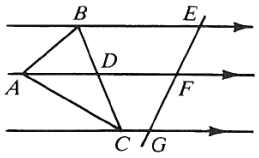
20. If two angles of a triangle are congruent to two angles of another triangle, then the triangles are _?_.

21. The ratio of a side of a square to the perimeter of the square is _?_.

22. The measures of the angles of a quadrilateral are in the ratio 2:4:5:7. Find the measures of the angles.

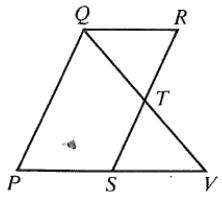
If you are interested, try this by using Theorems 7–3 and 7–4 on p. 269.

25. Given: $\overleftrightarrow{BE} \parallel \overleftrightarrow{AF} \parallel \overleftrightarrow{CG}$;
$\overrightarrow{AF}$ bisects $\angle BAC$.
Prove: $\frac{AB}{AC} = \frac{EF}{FG}$

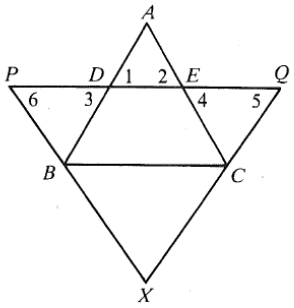


Name: _____

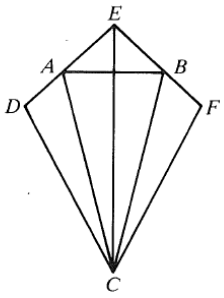
26. Given: $\triangle QRT \cong \triangle VST$; S is the midpoint of $\overline{PV}$.
Prove: Quadrilateral $PQRS$ is a parallelogram.



27. Given: $\overline{AD} \cong \overline{AE}$; $\overline{PX} \cong \overline{QX}$; $\overline{PD} \cong \overline{EQ}$
Prove: $\overline{BD} \cong \overline{CE}$



28. Given: $\overline{DC} \cong \overline{FC}$; $\overline{DE} \cong \overline{FE}$; $\overline{DA} \cong \overline{FB}$
Prove: $\triangle DAC \cong \triangle FBC$



Name: _____

Chapters 8–10

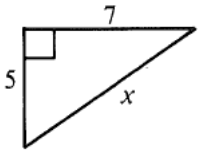
Classify each statement as true or false.

5. In right $\triangle ABC$, the tangent of $\angle B$ is $\frac{\text{leg opposite } \angle B}{\text{leg adjacent to } \angle B}$.

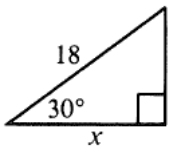
6. When two or more lines intersect in one point, the lines are concurrent.

Find the value of *x*.

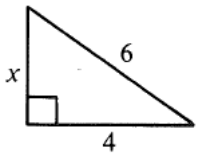
8.



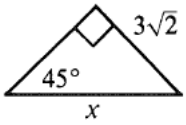
9.



10.

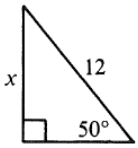


11.

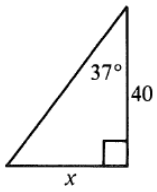


Find the value of *x* to the nearest tenth or to the nearest degree. Use a calculator or the table on page 311.

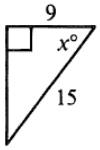
12.



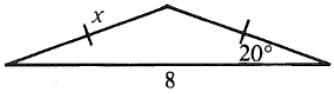
13.



14.



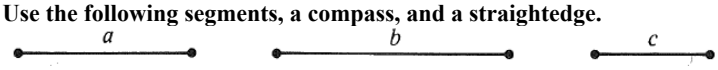
15.



For the following questions, use compass and straightedge, only.

20. Construct a 30° angle.

Use the following segments, a compass, and a straightedge.

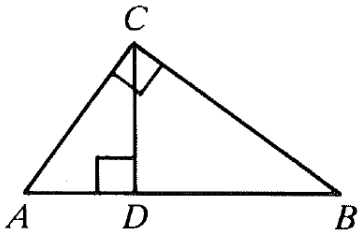


23. Construct a right triangle with legs of lengths *a* and *b*.

If you are interested, try this by using Construction 14 on page 397.

24. Construct a segment of length *d* such that $ad = bc$.

In the following questions, CD = 12. (Write so in the diagram.)



31. If $AC = 15$, find AD.

32. If $AD = 4$, find DB.

33. If $DB = 16$, find BC.

34. If $AB = 26$ and $AD < BD$, find AD.

Name: _____

Chapters 11–12

Find each of the following.

1. The volume of a sphere with radius 10 cm.

3. The volume of a cylinder with height 10 and ***diameter*** 10.

4. The volume of a regular square pyramid with base edges 8 and height 3.

5. The total area of the pyramid in Exercise 4.

6. The lateral area of a cone with slant height 14 and radius 9.

9. The area of a rhombus with diagonals 8 and 18.

11. The area of a sphere with radius 5.

20. The ratio of the volumes of two similar prisms is 64/27. Find the ratio of their lateral areas.

21. Find the area of a right triangle with hypotenuse 13 and leg 5.

25. Find the height of a trapezoid with bases 9 cm and 15 cm long and area 60 cm^2.

26. A right triangular prism has height 6 and base edges 5, 5, and 8. Find the total area.

27. A regular square pyramid has lateral edge $\sqrt{34}$ *(square root of 34)* and base edge 6. Find the volume.

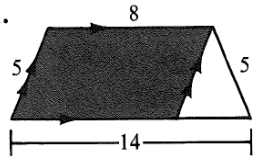
28. A cone with radius 6 has lateral area 60π. Find the volume.

29. Find the circumference of the circle that can be circumscribed about a square with side 3 cm.

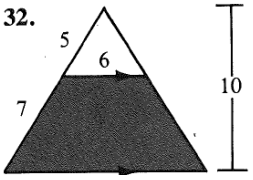
30. The lateral areas of two similar square pyramids are 20 m^2 and 125 m^2, respectively. The volume of the smaller pyramid is 8 m^3. Find the volume of the larger pyramid.

Find the area of each shaded region.

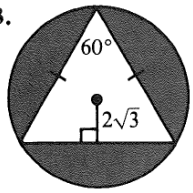
31.



32.



33.



38. Find the edge of a cube with total area 150 cm^2.