Sheet 370: Ch 1-3 Practice Review

Name:

Cumulative Reviews

Chapters 1–3

Complete.

1. If Q is between P and R, then PQ + ___?___ = ___?___.
2. Four or more points lying in one plane are said to be ___?___.
3. In $\triangle DEF$, the angle included between $\overline{DF}$ and $\overline{EF}$ is $\angle$ ___?___.
4. If two parallel lines are cut by a transversal, then ___?___ angles are congruent.
5. If $\overrightarrow{BE}$ bisects $\angle ABC$, then $\angle$ ___?___ $\cong \angle$ ___?___.
6. If point D lies between points A and C, then $\angle ADC$ is a(n) ___?___ angle.

7. Two lines parallel to a third line are ___?___.
8. One of two congruent adjacent supplementary angles is called a(n) ___?___ angle.
9. The measure of an ___?___ angle of a triangle equals the sum of the measures of the two remote interior angles.
10. If $m\angle A = 57$, what is the measure of a complement of $\angle A$?
11. On a number line point A has coordinate -4 and point B has coordinate 8.
    a. Find the length of $\overline{AB}$.
    b. Find the coordinate of the midpoint of $\overline{AB}$.

12. If two angles of a triangle have measures 23 and 110, what is the measure of the third angle?
13. Find the sum of the measures of the angles of a polygon with 11 sides.
14. If seven exterior angles of an octagon each have measure 42, what is the measure of the eighth exterior angle?
15. Consider the statement: Any equilateral triangle has congruent sides.
    a. Write the statement in if-then form.
    b. Write the converse of the statement.

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Justify each statement with a property from algebra or a property of congruence.

20. If $\angle A \cong \angle B$ and $\angle B \cong \angle C$, then $\angle A \cong \angle C$.

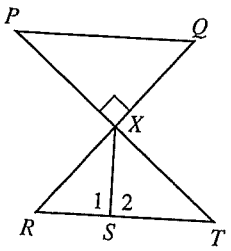
21. If $RS = XY$ and $ST = YZ$, then $RS + ST = XY + YZ$.

22. If $m\angle 1 + m\angle 2 = m\angle 3$ and $m\angle 2 = m\angle 4$, then $m\angle 1 + m\angle 4 = m\angle 3$.

Exercises 16 and 17 refer to the diagram.

16. Find the measure of $\angle RXT$. State the theorem that justifies your answer.

17. Name two pairs of supplementary angles.



Exs. 16–19

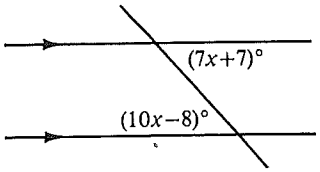
State the definition or theorem that justifies the statement about the diagram at the right.

18. If $\overline{XS} \perp \overline{RT}$, then $\angle 1 \cong \angle 2$.

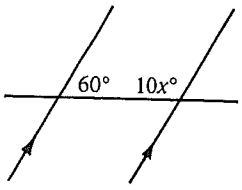
19. If $\angle 1 \cong \angle 2$, then $\overline{XS} \perp \overline{RT}$.

Find the value of x.

23.



24.



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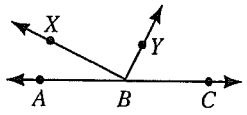
25. A supplement of an angle is four times as large as a complement of the angle. Find the measure of the angle.

26. If each interior angle of a regular polygon has measure 135, find the number of sides of the polygon.

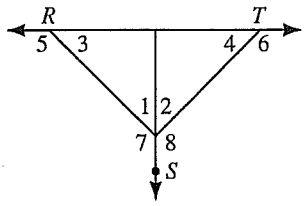
What can you conclude from the given information?



27. Given: $\overrightarrow{BX} \perp \overrightarrow{BY}$

28. Given: $\angle ABX$ and $\angle YBC$ are comp. $\measuredangle$s.

29. Given: $\angle 1$ and $\angle 2$ are comp. $\measuredangle$s;
$\angle 1$ and $\angle 4$ are comp. $\measuredangle$s;
$\angle 2$ and $\angle 3$ are comp. $\measuredangle$s.



a. $\angle 1 \cong \angle$?

b. $\angle 2 \cong \angle$?

c. $\angle 5 \cong \angle$?

d. $\angle 6 \cong \angle$?

e. If $m\angle 8 = 150$, then $m\angle 7 =$?.

f. If $m\angle 1 = 45$, then $m\angle 6 =$?.

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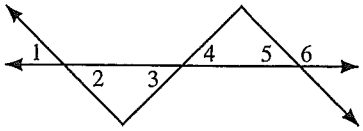
Write a two-column proof.

30. Given: $\angle 2 \cong \angle 3$;
$\angle 4 \cong \angle 5$
Prove: $\angle 1$ is supp. to $\angle 6$.



1. $\overline{QR}$; $\overline{PR}$ **2.** coplanar **3.** F **4.** corresponding or alternate interior **5.** ABE, EBC **6.** straight **7.** parallel **8.** right **9.** exterior **10.** 33 **11. a.** 12 **b.** 2 **12.** 47 **13.** 1620 **14.** 66 **15. a.** If a $\triangle$ is equilateral, then the sides of the $\triangle$ are $\cong$. **b.** If the sides of a $\triangle$ are $\cong$, then the $\triangle$ is equilateral. **16.** 90; Vertical $\measuredangle$ are $\cong$. **17.** Answers may vary. $\angle 1$ and $\angle 2$, $\angle PXQ$ and $\angle QXT$ **18.** If 2 lines are $\perp$, then they form $\cong$ adj. $\measuredangle$. **19.** If 2 lines form $\cong$ adj. $\measuredangle$, then the lines are $\perp$. **20.** Trans. Prop. **21.** Add. Prop. of $=$ **22.** Subst. Prop. **23.** 5 **24.** 12 **25.** 60 **26.** 8 Answers may vary in Exs. 27–28. **27.** $m\angle XBY = 90$, $\angle ABX$ and $\angle YBC$ are complementary. **28.** $\angle XBY$ is a rt. $\angle$, $\overrightarrow{BX} \perp \overrightarrow{BY}$ **29. a.** 3 **b.** 4 **c.** 7 **d.** 8 **e.** 120 **f.** 135 **30.** 1. $\angle 1 \cong \angle 2$ (Vert. $\measuredangle$ are $\cong$.) 2. $\angle 2 \cong \angle 3$ (Given) 3. $\angle 3 \cong \angle 4$ (Vert. $\measuredangle$ are $\cong$.) 4. $\angle 4 \cong \angle 5$ (Given) 5. $\angle 1 \cong \angle 5$ or $m\angle 1 = m\angle 5$ (Trans. Prop. used several times) 6. $m\angle 5 + m\angle 6 = 180$ ($\angle$ Add. Post.) 7. $m\angle 1 + m\angle 6 = 180$ (Subst. Prop.) 8. $\angle 1$ is supp. to $\angle 6$. (Def. of supp. $\measuredangle$)