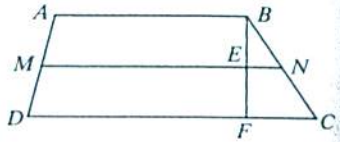
Chapter Test

Tell whether the statement is *always*, *sometimes*, or *never* true.

1. A square is ? a rectangle. always
2. A rectangle is ? a rhombus. sometimes
3. A rhombus is ? a square. sometimes
4. A rhombus is ? a parallelogram. always
5. A trapezoid ? has three congruent sides. sometimes
6. The diagonals of a trapezoid ? bisect each other. never
7. The sides of a triangle are ? 13 cm, 19 cm, and 33 cm long. never
8. In $\square ABCD$, if $m\angle A > m\angle B$, then $\angle D$ is ? an acute angle. always

Trapezoid $ABCD$ has median $\overline{MN}$.

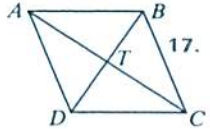


9. If $DC = 17$ and $MN = 12$, then $AB =$?. 7
10. If $FC = 9$, then $EN =$?. $4\frac{1}{2}$
11. If $AB = 5j + 7k$ and $DC = 9j - 3k$, then $MN =$?. $7j + 2k$

12. If the sides of a triangle have lengths x, 8, and 12, then ? $< x <$?. 4, 20
13. To write an indirect proof of "If $RS = 10$, then quad. $RSTU$ is a parallelogram," you begin by writing: "Assume temporarily that ?." *RSTU is not a* $\square$
14. If both pairs of opp. $\angle$ of a quad. are $\cong$, the quad. is a $\square$.
15. If one pair of opp. sides of a quad. are both $\cong$ and $\parallel$, the quad. is a $\square$.

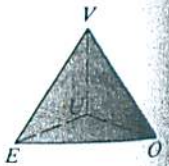
State the theorem that enables you to deduce, from the information given, that quad. $ABCD$ is a parallelogram.

14. $\angle ADC \cong \angle CBA$ and $\angle BAD \cong \angle DCB$
15. $\overline{AD} \parallel \overline{BC}$ and $\overline{AD} \cong \overline{BC}$
16. $AT = CT$ and $DT = \frac{1}{2}DB$
17. $\overline{AB}$, $\overline{BC}$, $\overline{CD}$, and $\overline{DA}$ are all congruent.

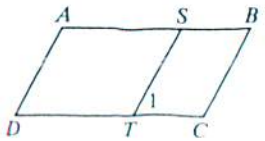


16. If the diag. of a quad. bis. each other, the quad. is a $\square$.
17. If both pairs of opp. sides of a quad. are $\cong$, the quad. is a $\square$.

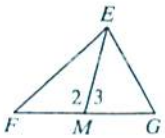
18. If $VE > VU$, then $m\angle$? $> m\angle$?. *VUE, VEU*
19. If $m\angle EOU > m\angle EUO$, then ? $>$?. *EU, EO*
20. If $\overline{VE} \cong \overline{VO}$ and $m\angle UVE > m\angle UVO$, then ? $>$?. *UE, UO*
21. If $m\angle EVU = 60$, $\overline{OE} \cong \overline{OU}$, and $m\angle VOE > m\angle VOU$, then the largest angle of $\triangle UVE$ is $\angle$?. *VUE*



22. Given: $\square ABCD$; $\angle D \cong \angle 1$
Prove: Quad. $ASTD$ is a parallelogram.



23. Given: $\overline{EM}$ is a median of $\triangle EFG$; $m\angle 2 > m\angle 3$
Prove: $m\angle G > m\angle F$



Preparing for College Entrance Exams

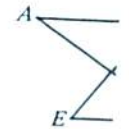
Strategy for Success

You may find it helpful to sketch figures or do calculations in your test booklet. Be careful not to make extra marks on your answer sheet.

Indicate the best answer by writing the appropriate letter.

B 1. Given: $\triangle RGA$ and $\triangle PMC$ with $\overline{RG} \cong \overline{PM}$, $\overline{RA} \cong \overline{PC}$, and $\angle R \cong \angle P$. Which method could be used to prove that $\triangle RGA \cong \triangle PMC$?
(A) SSS (B) SAS (C) HL (D) ASA
(E) There is not enough information for a proof.

C 2. Given: $\overline{BE}$ bisects $\overline{AD}$. To prove that the triangles are congruent by the AAS method, you must show that:
(A) $\angle A \cong \angle E$ (B) $\angle A \cong \angle D$ (C) $\angle B \cong \angle E$
(D) $\angle B \cong \angle D$ (E) $\angle ADE$ bisects $\overline{BE}$.



A 3. Which statement does *not* guarantee that quadrilateral $WXYZ$ is a parallelogram?
(A) $\overline{WX} \cong \overline{YZ}$; $\overline{XY} \parallel \overline{WZ}$ (B) $\angle W \cong \angle Y$; $\angle X \cong \angle Z$
(C) $\overline{WX} \cong \overline{YZ}$; $\overline{XY} \cong \overline{WZ}$ (D) $\overline{XY} \parallel \overline{WZ}$; $\overline{WX} \parallel \overline{ZY}$
(E) $\overline{XY} \cong \overline{WZ}$; $\overline{XY} \parallel \overline{WZ}$

D 4. In $\triangle ABC$, $AB = 7$ and $BC = 10$. AC *cannot* equal:
(A) 7 (B) 10 (C) 3.14 (D) 17 (E) $\frac{34}{3}$

A 5. The next number in the sequence 2, 6, 12, 20, 30, 42, ? is:
(A) 56 (B) 52 (C) 58 (D) 54 (E) 60

B 6. Which statement is not always true for every rhombus $ABCD$?
(A) $AB = BC$ (B) $AC = BD$ (C) $\angle B \cong \angle D$ (D) $\overline{AC} \perp \overline{BD}$ (E) $\angle AB$

C 7. The diagonals of quadrilateral $MNOP$ intersect at X. Which statement guarantees that $MNOP$ is a rectangle?
(A) $MO = NP$ (B) $\angle PMN \cong \angle MNO \cong \angle NOP$
(C) $MX = NX = OX = PX$ (D) $\overline{MO} \perp \overline{NP}$
(E) Each pair of consecutive angles is supplementary.

E 8. In $\triangle JKL$, $\overline{KL} \cong \overline{LJ}$, $m\angle K = 2x - 36$, and $m\angle L = x + 2$. Find $m\angle J$.
(A) 50 (B) 52 (C) 53 (D) 55 (E) 64

D 9. In $\triangle RST$, $\overleftrightarrow{SU}$ is the perpendicular bisector of $\overline{RT}$ and U lies on $\overline{RT}$. Which statement(s) must be true?
(I) $\triangle RST$ is equilateral (II) $\triangle RSU \cong \triangle TSU$
(III) $\overleftrightarrow{SU}$ is the bisector of $\angle RST$
(A) I only (B) II only (C) III only
(D) II and III only (E) I, II, and III

B 10. In $\triangle ABC$, if $AB = BC$ and $AC > BC$, then:
(A) $AB < AC - BC$ (B) $m\angle B > m\angle C$ (C) $m\angle B < m\angle A$
(D) $m\angle B = 60$ (E) $m\angle B = m\angle A$