Standards review—geometry

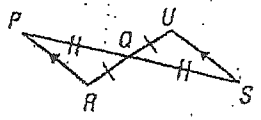
No calculator!! **Show your work!!** ★

1. **Multiple Choice** Which theorem or postulate *cannot* be used to show that $\triangle PQR \cong \triangle SQU$?

no work

Ⓐ ASA Ⓑ AAS

Ⓒ SAS Ⓓ SSS



2. **Multiple Choice** In the diagram, suppose that $\overline{AD} \cong \overline{CB}$ and $\angle BCA \cong \angle DAC$. Which triangles can you use to prove that $\angle EBA \cong \angle EDC$?

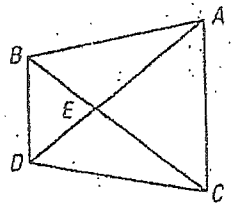
no work

Ⓐ $\triangle ABC$ and $\triangle CDA$

Ⓑ $\triangle ABE$ and $\triangle CDE$

Ⓒ $\triangle DEB$ and $\triangle AEC$

Ⓓ Not enough information

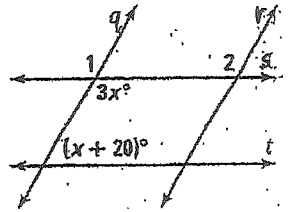


3. If $\angle 1 \cong \angle 2$, which statement is true?

no work

Ⓐ $r \parallel s$ Ⓑ $q \parallel r$

Ⓒ $s \parallel t$ Ⓓ None of these



★ **4.** Find the value of x so that $s \parallel t$.

Ⓕ 10 Ⓖ 40

Ⓗ 50 Ⓙ 60

5. **Multiple Choice** Which statement is *false*?

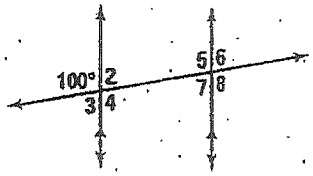
no work

Ⓐ $m\angle 2 + m\angle 5 = 180°$

Ⓑ $m\angle 5 + m\angle 6 = 180°$

Ⓒ $m\angle 6 + m\angle 7 = 180°$

Ⓓ $m\angle 3 + m\angle 8 = 180°$



6. **Multiple Choice** Which statement about the diagram above is *true*?

no work

Ⓕ $\angle 2 \cong \angle 4$ Ⓖ $\angle 5 \cong \angle 7$ Ⓗ $\angle 3 \cong \angle 8$ Ⓙ $\angle 6 \cong \angle 3$

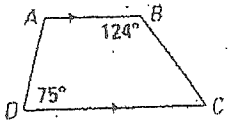
★ **7.** $ABCD$ is a trapezoid. Which of the following statements is true?

Ⓐ $m\angle C = 56°$

Ⓑ $m\angle A = 75°$

Ⓒ $\angle A$ and $\angle C$ are supplementary.

Ⓓ $\angle C$ and $\angle D$ are supplementary.



check:

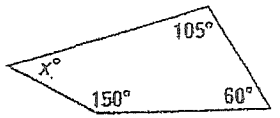
A A A

B C C

D G

J J

★ **8.** Find the value of x.

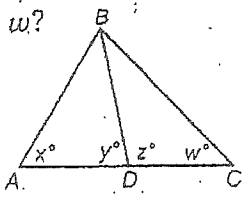


Ⓕ 22 Ⓖ 40

Ⓗ 44 Ⓙ 45

★ **9.** If $\triangle ABC$ is equilateral, what is the value of $x - (y + z) + w$?

A −60
B 0
C 20
D 60
E It cannot be determined from the information given.



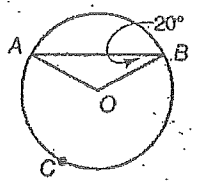
★ **10.** Each angle in the figure below is a right angle. Find the perimeter of the figure.

A 11 units
B 18 units
C 22 units
D 24 units
E 28 units

No calculator!! Show your work!!

11. In the circle O below, if $m\angle B = 20°$, find $m\overset{\frown}{ACB}$.

A 40°
B 140°
C 220°
D 320°
E None of these



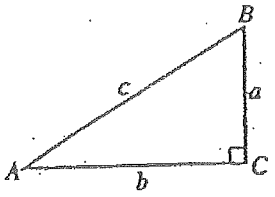
12. 

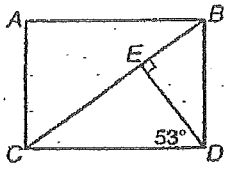
Figure 6

In right $\triangle ABC$ in Figure 6, $\dfrac{\sin A + \cos B}{\cos B}$ is equal to which of the following?

(A) 2 (B) $\dfrac{a+c}{c}$ (C) $\dfrac{2a}{b}$ (D) $\dfrac{2b}{c}$ (E) $\dfrac{2a}{c}$

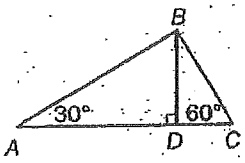
13. In the rectangle $ABDC$ below, what is the measure of $\angle ACB$?

A 63°
B 53°
C 37°
D 45°
E It cannot be determined from the information given.



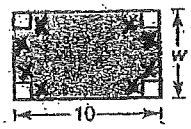
14. In $\triangle ABC$ shown below, $A = 30°$, $C = 60°$, and $AC = 10$. Find BD.

A $\frac{5}{2}$
B $\frac{5\sqrt{3}}{2}$
C $\frac{\sqrt{3}}{2}$
D $\frac{1}{2}$
E $\frac{\sqrt{3}}{3}$



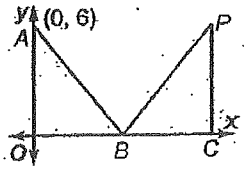
15. In the rectangle below, what is the area of the shaded region?

A $10w$
B $4x^2$
C $10w - 4x$
D $10w - x^2$
E $10w - 4x^2$



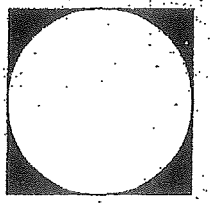
16. In the figure below, $\triangle AOB$ and $\triangle PCB$ are isosceles right triangles with equal areas. What are the coordinates of point P?

A (6, 0)
B (6, 12)
C (12, 0)
D (0, 12)
E (12, 6)



17. A circle is inscribed in a square as shown in the figure below. What is the ratio of the area of the shaded region to the area of the square?

A $\frac{\pi}{4}$
B $\frac{1-\pi}{4}$
C $\frac{4-\pi}{4}$
D $\frac{4}{\pi}$
E $\frac{4}{1-\pi}$



18. In circle O, $\overline{AB}$ is a chord, $\overline{OA}$ and $\overline{OB}$ are radii, $m\angle AOB = 120°$, and $AB = 12$. Find the distance from the chord to the center of the circle.

A $2\sqrt{3}$ B $4\sqrt{3}$
C 3 D 6
E It cannot be determined from the information given.

19. $\triangle ABC$ is inscribed in a circle. $m\angle A = 40°$, and $m\angle C = 80°$. Which is the shortest chord?

A $\overline{AB}$ B $\overline{BC}$
C $\overline{CA}$ D $AC = BC$
E It cannot be determined from the information given.

→ Check: AABBBCCEE