

Name: \_\_\_\_\_

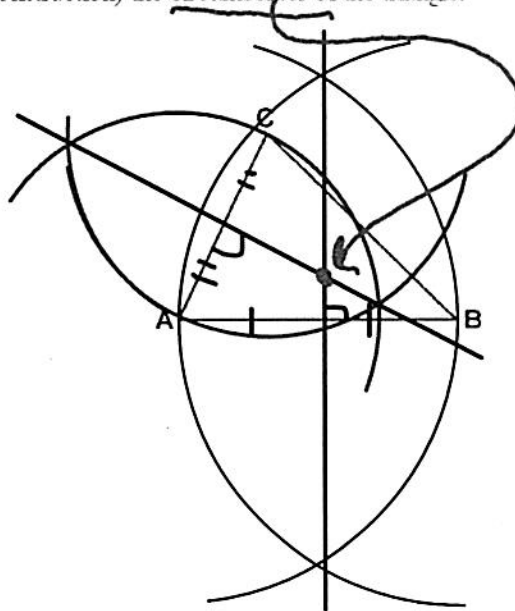
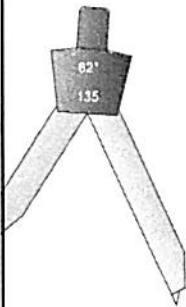
Review for Unit 3 Exam

⊥ bisectors

- 1) What types of concurrent constructions are needed to find the ~~circumcenter~~ of a triangle?
- A) intersection of the lines drawn from each vertex of the triangle and perpendicular to its opposite side
  - B) intersection of the lines drawn to bisect each vertex of the triangle
  - C) intersection of the lines drawn perpendicular to each side of the triangle through its midpoint
  - D) intersection of the lines drawn to the midpoint of each side of the triangle to its opposite vertex

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- 2) Given  $\triangle ABC$ , locate (by construction) the circumcenter of the triangle.



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- 3) What types of concurrent constructions are needed to find the incenter of a triangle?
- A) intersection of the lines drawn perpendicular to each side of the triangle through its midpoint
  - B) intersection of the lines drawn to the midpoint of each side of the triangle to its opposite vertex
  - C) intersection of the lines drawn from each vertex of the triangle and perpendicular to its opposite side
  - D) intersection of the lines drawn to bisect each vertex of the triangle

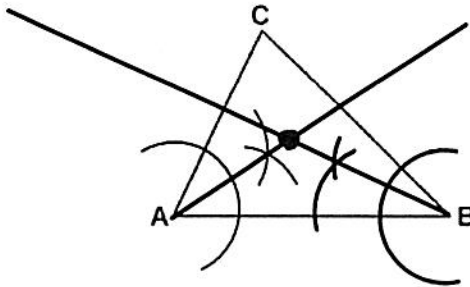
*& bisectors*

- 4) The incenter of a triangle is also the center of

- A) mass and balance
- B) a circle circumscribing the triangle
- C) a circle inscribed inside the triangle
- D) all of the above

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- 5) Given  $\triangle ABC$ , locate (by construction) the incenter of the triangle.



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## medians

- 6) What types of concurrent constructions are needed to find the centroid of a triangle?
- A) intersection of the lines drawn to the midpoint of each side of the triangle to its opposite vertex
  - B) intersection of the lines drawn from each vertex of the triangle and perpendicular to its opposite side
  - C) intersection of the lines drawn to bisect each vertex of the triangle
  - D) intersection of the lines drawn perpendicular to each side of the triangle through its midpoint
- 7) What point of concurrency in a triangle divides the medians into segments whose measures are in the ratio of 2:1?
- A) circumcenter      B) orthocenter      C) incenter       D) centroid

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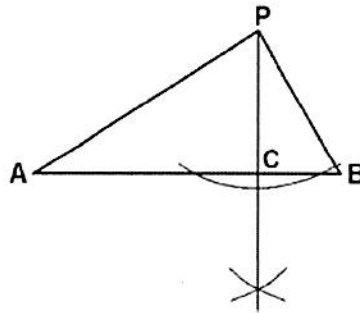
- 8) What point of concurrency in a triangle is *always* located inside the triangle?
- A) orthocenter and circumcenter
  - B) centroid and incenter
  - C) orthocenter, only
  - D) incenter, only

- 9) What types of concurrent constructions are needed to find the orthocenter of a triangle?
- A) intersection of the lines drawn to the midpoint of each side of the triangle to its opposite vertex
  - B) intersection of the lines drawn from each vertex of the triangle and perpendicular to its opposite side
  - C) intersection of the lines drawn to ~~bisect~~ each vertex of the triangle
  - D) intersection of the lines drawn perpendicular to each side of the triangle through its ~~midpoint~~
- Altitude

- 10) In what type of triangle is the orthocenter located outside of the triangle?
- A) obtuse
  - B) right
  - C) acute
  - D) equilateral

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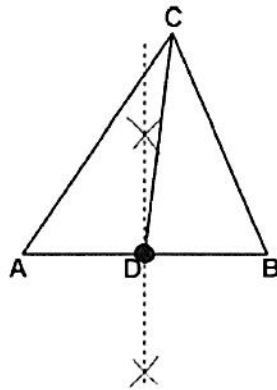
11) In the accompanying diagram of a construction, what does  $\overline{PC}$  represent?



- A) the bisector of  $\angle APB$
- B) the perpendicular bisector of  $\overline{AB}$
- C) a median drawn to  $\overline{AB}$
- D) an altitude drawn to  $\overline{AB}$

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12) In the accompanying diagram,  $\triangle ABC$  is scalene.

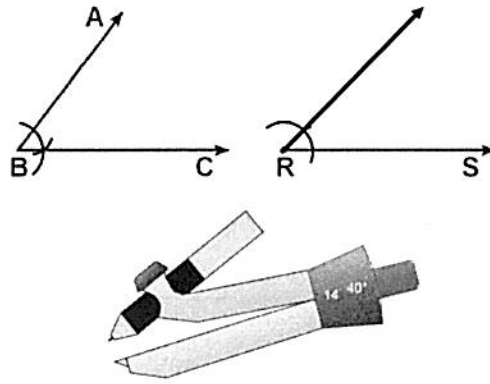


The construction on this triangle shows that  $\overline{CD}$  is the

- A) median to side  $\overline{AB}$
- B) altitude to side  $\overline{AB}$
- C) perpendicular bisector of  $\overline{AB}$
- D) bisector of  $\angle C$

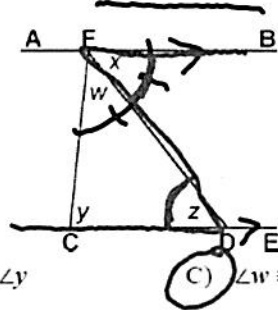
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13) Construct an angle congruent to angle  $\angle ABC$ , using  $\overrightarrow{RS}$  as one ray of the angle.



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14) In the accompanying diagram,  $\overline{AFB} \parallel \overline{CDE}$ . If  $\overline{FD}$  bisects  $\angle CFB$ , which statement is true?



*bisected*  
 $\angle x \cong \angle w$   $\angle$ 's  
 $\angle x \cong \angle z$   
 alt. int.  $\angle$ 's

A)  $\angle y \cong \angle z$

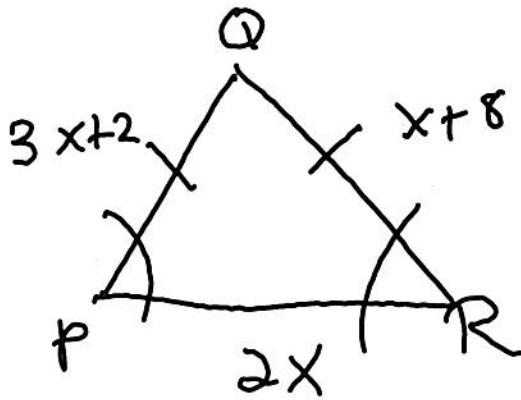
B)  $\angle x \cong \angle y$

**C)  $\angle w \cong \angle z$**

D)  $\angle w \cong \angle y$

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15) In  $\triangle PQR$ ,  $\angle P \cong \angle R$ . If  $QP = 3x + 2$ ,  $QR = x + 8$  and  $PR = 2x$ , find the value of  $x$ .



$$\begin{aligned} 3x+2 &= x+8 \\ \underline{-x} & \quad \underline{-2} \\ 2x &= 6 \\ \underline{\div 2} & \quad \underline{\div 2} \\ x &= 3 \end{aligned}$$

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<p><b>Incenter</b></p> <ul style="list-style-type: none"> <li>• Intersection of 3 bisectors</li> <li>• Center of the inscribed circle</li> <li>• Equidistant from 3 sides</li> </ul>	<p><b>Circumcenter</b></p> <ul style="list-style-type: none"> <li>• Intersection of <math>\perp</math> bisectors</li> <li>• Center of the circumscribed circle</li> <li>• Equidistant from all 3 vertices</li> </ul>
<p><b>Centroid</b></p> <ul style="list-style-type: none"> <li>• Intersection of the medians</li> <li>• 2:1 ratio</li> </ul>	<p><b>Orthocenter</b></p> <ul style="list-style-type: none"> <li>• Intersection of the altitudes</li> </ul>

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