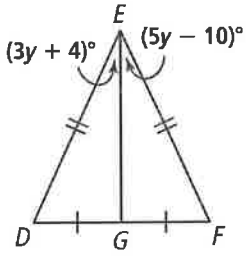
5 Assessment Form B

1. Which of the following statements must be true? Select all that apply.



Ⓐ $\overline{EG}$ bisects $\triangle DEF$.

Ⓑ $\triangle DEF$ is isosceles.

Ⓒ $\overline{EG}$ is the perpendicular bisector of $\overline{DF}$.

Ⓓ $m\angle DEG = 25°$

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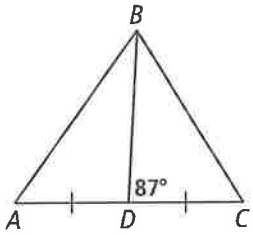
2. Which of the following statements must be true?



Ⓐ $AB > BC$

Ⓑ $AB < BC$

Ⓒ $\overline{BD}$ bisects $\angle ABC$

Ⓓ The circumcenter lies on $\overline{BD}$

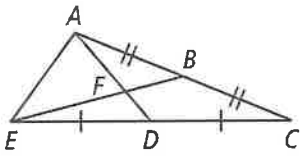
Items 3–5. A triangle has vertices at (1, 10), (−5, 2), and (7, 2).

3. What is the circumcenter? $\left(1, 4\frac{1}{2}\right)$

4. What is the orthocenter? **(1, 6)**

5. What is the centroid? $\left(1, 4\frac{2}{3}\right)$

Items 6–9. $\triangle AEC$ is shown below. F is the centroid.



6. F is the intersection of _____.

Ⓐ medians

Ⓑ angle bisectors

Ⓒ altitudes

Ⓓ perpendicular bisectors

7. What is AD if $FD = 5$?

Ⓐ 5

Ⓑ 10

Ⓒ 7.5

Ⓓ 15

8. Suppose $BE = 15x^2 + 3y$. What is EF?

Ⓐ 3

Ⓑ $10x^2 + 2y$

Ⓒ $5x^2 + y$

Ⓓ $10x^2 + y$

9. What is EF if $EB = 3x$?

Ⓐ x

Ⓑ $2x$

Ⓒ $\frac{x}{3}$

Ⓓ $\frac{2x}{3}$

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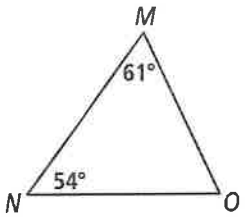
10. List the sides from shortest to longest in $\triangle MNO$.



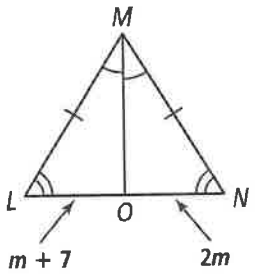
Ⓐ $\overline{MN}, \overline{NO}, \overline{MO}$

Ⓑ $\overline{MO}, \overline{MN}, \overline{NO}$

Ⓒ $\overline{MO}, \overline{NO}, \overline{MN}$

Ⓓ not enough information

Items 11–13. $\triangle LMN$ is shown below.



11. What is LN?

14

12. Which of the following describes $\overline{MO}$? Check all that apply.

Ⓐ angle bisector
Ⓑ perpendicular bisector
Ⓒ median
Ⓓ altitude

13. Which of the following does $\overline{MO}$ contain? Check all that apply.

Ⓐ circumcenter
Ⓑ orthocenter
Ⓒ incenter
Ⓓ centroid

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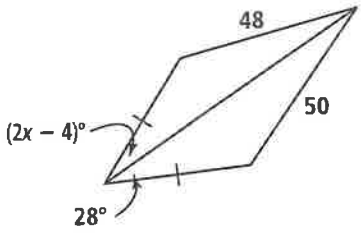
14. What is a range of possible values for x?



$2° < x < 16°$

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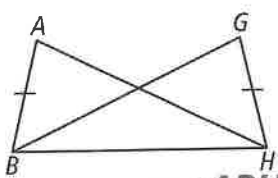
15. Suppose $AH < GB$ in the figure below. What is an inequality that relates $m\angle ABH$ and $m\angle GHB$?



$m\angle ABH < m\angle GHB$

16. A frame designer is making a triangular frame. She has two sides of length 18 inches and 27 inches? What are the length possibilities (in whole inches) for the third side?

Ⓐ 9 in. or less
Ⓑ 45 in. or more
Ⓒ between 10 in. and 44 in.
Ⓓ not possible

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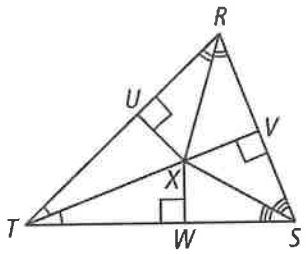
17. Which point of concurrency always lies on the interior of a triangle? Check all that apply.

Ⓐ circumcenter
Ⓑ incenter
Ⓒ orthocenter
Ⓓ centroid

Items 18–19. $\triangle RST$ is shown below. $XU = -4y + 20$ and $XW = 6y + 10$.



18. Find the radius of the inscribed circle of $\triangle RST$.

16

19. Suppose $m\angle RTX = 22°$. What is $m\angle RTW$?

44°

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20. A police officer is parked in a supermarket parking lot located at the junction of two streets. Where should he park so he is equidistant from both streets?

angle bisector