EOC Prep #3

Name: _____ **Date:** _____

1. A set of points that extend indefinitely in two opposite directions is called _____.

   A. a line B. an angle

   C. a plane D. a ray

2. Three non-collinear points must be part of the same _____.

   A. circle B. plane C. line D. angle

3. Two non-parallel lines intersect at a _____.

   A. point B. line C. plane

   D. none of these

4. In a plane, lines that never meet are called _____.

   A. parallel B. congruent

   C. intersecting D. concentric

5. In a plane, lines that cross are called _____.

   A. parallel B. congruent

   C. intersecting D. concentric

6. The intersection of two lines is—

   A. a line B. a ray

   C. an angle D. a point

7. The intersection of two planes is—

   A. a line B. a plane

   C. a point D. a square

8. Which of the following *cannot* be measured?

   A. a line segment

   B. the radius of a circle

   C. a point

   D. an arc

9. Which of the following can be measured?

   A. point B. angle C. plane D. ray

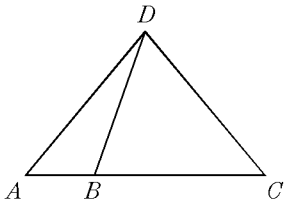
10. Which of the following sets of points are collinear?

    A. *A*, *B*, *D*

    B. *A*, *B*, *C*

    C. *D*, *A*, *C*

    D. *C*, *A*, *D*



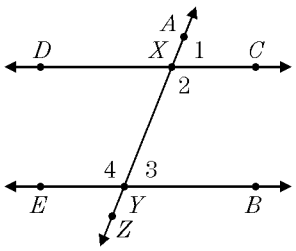
11. Which of the following sets of points are collinear?

    A. *A*, *X*, *C*

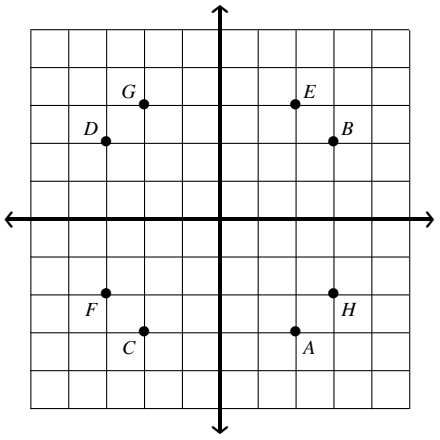
    B. *A*, *X*, *D*

    C. *D*, *X*, *C*

    D. *A*, *Y*, *E*



12. What is the image of point A after a rotation of 90° in the clockwise direction?



A. C B. D C. E D. F

13. What is the image of point A after a rotation of 90° in the counterclockwise direction?

A. B B. D C. E D. F

14. What is the image of point A after a rotation of 180° in the counterclockwise direction?

A. C B. D C. F D. G

15. What is the image of point A after a rotation of 270° in the counterclockwise direction?

A. C B. D C. E D. F

16. What is the image of $(-2, 3)$ after a rotation of 90° counterclockwise?

A. $(2, 3)$ B. $(3, -2)$

C. $(-2, -3)$ D. $(-3, -2)$

17. What is the image of $(-4, 1)$ after a rotation of 180° clockwise?

A. $(-1, -4)$ B. $(4, -1)$

C. $(4, 1)$ D. $(1, -4)$

18. What is the image of $(-2, 3)$ after a rotation of 90° clockwise?

A. $(-3, -2)$ B. $(3, 2)$

C. $(3, -2)$ D. $(-2, -3)$

19. Select the letters that would appear the same after a 180° rotation about the center.

I. A

II. H

III. R

IV. S

A. I only B. II only

C. III only D. II and IV

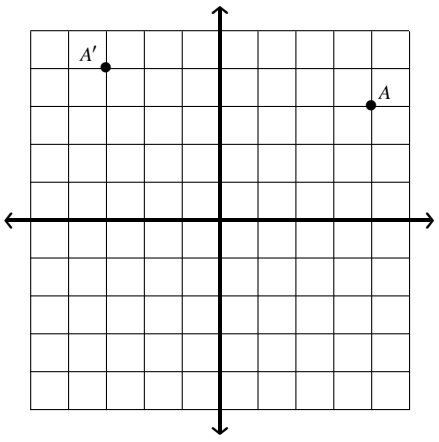
20. A' is the image of A. Which of the following rotations could be used to perform this transformation?

I. 90° counterclockwise

II. 90° clockwise

III. 270° clockwise

IV. 270° counterclockwise



A. III only B. IV only

C. I and II D. I and III

21. If a point in Quadrant II is reflected in the y-axis, its image will lie in Quadrant _____.

A. I B. III C. IV

D. on the y-axis

22. If a point in Quadrant III is reflected in the x-axis, its image will lie in Quadrant _____.

A. I B. II C. IV

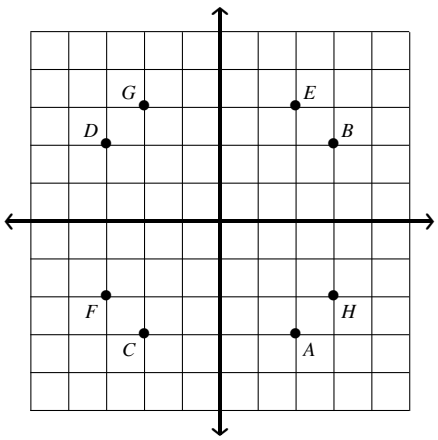
D. on the y-axis

23. Find P', the image of $P(-3, 6)$, after a reflection across the line $y = x$.

A. $(6, -3)$ B. $(3, 6)$

C. $(-3, -6)$ D. $(6, 3)$

24. What is the image of point A after a rotation of 90° in the counterclockwise direction followed by a reflection in the y-axis?



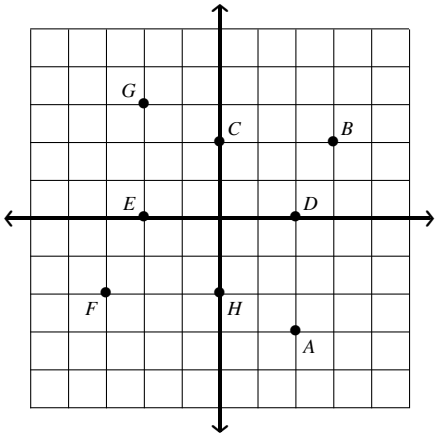
A. C B. D C. E D. H

25. What is the image of point $A(2, -3)$ after these three transformations?

I. a translation 2 units to the left and 5 units up;

II. A reflection in the x-axis; and

III. A 180° clockwise rotation about the origin



A. C B. E C. G D. H

26. What is the rotational symmetry of an equilateral triangle?

A. 120° B. 100° C. 90° D. 60°

27. What is the rotational symmetry of a regular octagon?

A. 60° B. 45° C. 40° D. 30°

28. What is the rotational symmetry of a regular nonagon?

A. 60° B. 45° C. 40° D. 30°

29. Which geometric figure has 72° rotational symmetry?

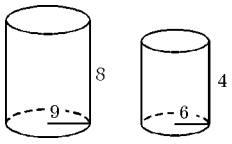
A. square B. regular pentagon

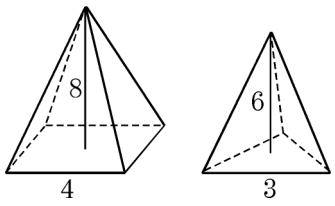
C. rhombus D. regular hexagon

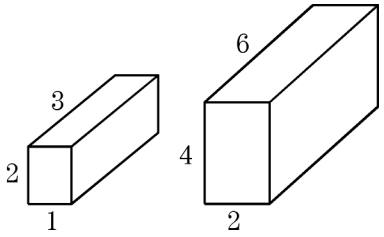
30. Which figure has 60° rotational symmetry?

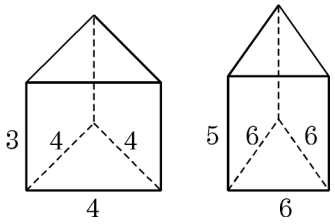
A. square
B. regular pentagon
C. regular octagon
D. regular hexagon

31. Determine which of the following are similar.

A.


B.


C.


D.


32. Which of the following statements *must* be true?

I. If two triangles are similar they have the same shape.

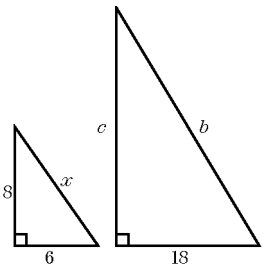
II. If two triangles are similar they have the same size.

III. All equilateral triangles are similar.

IV. All isosceles triangles are similar.

A. II only
B. I and II only
C. I and III only
D. all are true

33. Given the information in the diagram, do the triangles have to be similar?



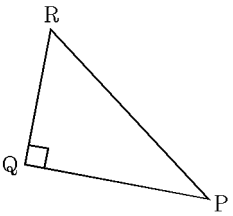
A. Yes. The right triangle is 3 times the size of the left triangle.

B. Yes. All scalene triangles are similar

C. No. Side c is not necessarily 24.

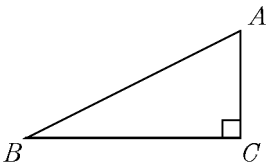
D. No. Scalene triangles are never similar.

34. In the triangle below, $\sin P = \frac{5}{13}$. Find $\cos R$.



A. $\frac{12}{13}$
B. $\frac{5}{12}$
C. $\frac{13}{12}$
D. $\frac{5}{13}$

35. In the triangle below, $\sin B = \frac{8}{17}$. Find $\cos A$.



A. $\frac{8}{17}$
B. $\frac{17}{15}$
C. $\frac{8}{15}$
D. $\frac{15}{17}$

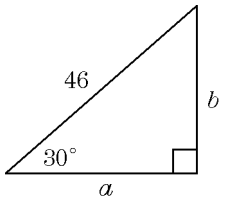
36. In right triangle ABC, if $m\angle C = 90$ and $\sin A = \frac{3}{5}$, $\cos B$ is equal to ____.

A. $\frac{3}{5}$
B. $\frac{4}{5}$
C. $\frac{3}{4}$
D. $\frac{4}{3}$

37. Find b.

A. 92 B. 76

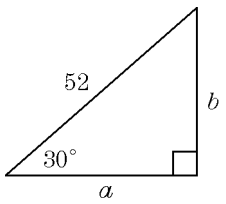
C. 23 D. 16



38. Find b.

A. 16 B. 26

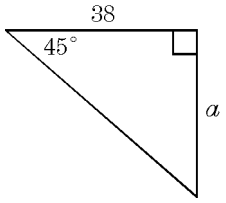
C. 76 D. 104



39. Find a.

A. 19 B. 26.9

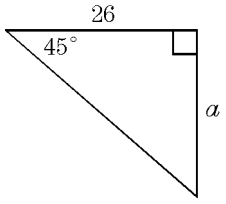
C. 38 D. 53.7



40. Find a.

A. 26 B. 36.8

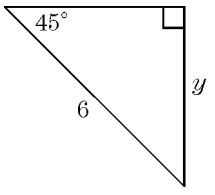
C. 45 D. 52



41. Find the exact value of y.

A. $\sqrt{2}$ B. 3

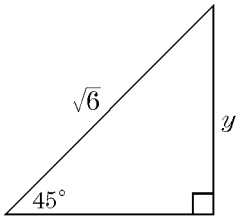
C. $2\sqrt{3}$ D. $3\sqrt{2}$



42. Find the exact value of y.

A. $\sqrt{2}$ B. $\sqrt{3}$

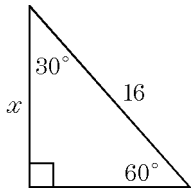
C. $2\sqrt{3}$ D. $2\sqrt{6}$



43. Approximate x to the nearest tenth.

A. 8 B. 10.7

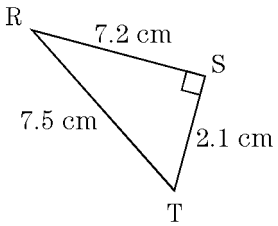
C. 11.4 D. 13.9



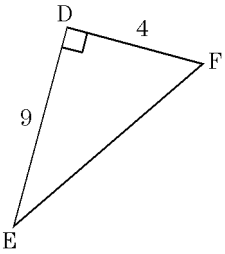
44. In $\triangle RST$, calculate $\angle R$ to the nearest degree.

A. 16° B. 26°

C. 73° D. 74°



45. Which trigonometric ratio can be used to find the measure of $\angle F$ using only the lengths shown?



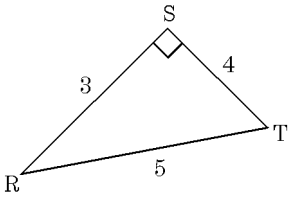
A. sine only

B. tangent only

C. all of the ratios above

D. no ratios

46. Which trigonometric ratio can be used to find the measure of $\angle T$ using only the lengths shown?



A. sine only

B. cosine only

C. all of the ratios above

D. no ratios

47. A ladder is leaning against a tree. If the angle that the ladder makes with the ground is 60°, and the ladder is 10 feet long, how far is the base of the ladder from the tree?

A. 5 ft B. 10 ft

C. 15 ft D. 25 ft

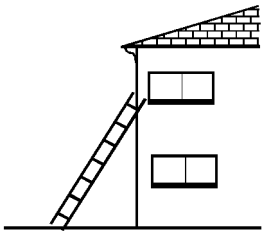
48. A 2.7 meter ladder leans against a house forming a 30° angle with the house. Exactly how far is the base of the ladder from the house?

A. 1.35 m

B. 1.50 m

C. 1.75 m

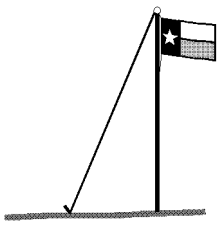
D. 2.25 m



49. The angle of elevation to the top of a flagpole is 52°. If the angle of elevation was measured 23 m from the center of the flagpole's base, what is its height to 1 decimal place?

A. 14.2 m B. 29.4 m

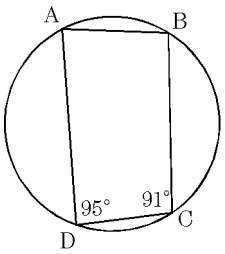
C. 30.1 m D. 37.4 m



50. What is the measure, in degrees, of $\angle B$?

A. 85 B. 89

C. 96 D. 99



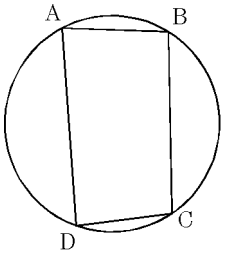
51. What is the measure, in degrees, of $\angle A$?

A. 85 B. 89 C. 95 D. 99

52. If $m\angle A = (2x + 5)^\circ$ and $m\angle C = (3x - 20)^\circ$, then what is the measure of $\angle BAD$?

A. 39° B. 75°

C. 83° D. 97°



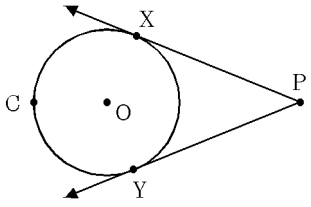
53. In the figure, $\overrightarrow{PX}$ and $\overrightarrow{PY}$ are drawn to the circle. If $m\widehat{XY} = 120^\circ$, then what is the measure of angle P?

A. 40°

B. 60°

C. 100°

D. 120°



54. In the figure, O is the center, $\overline{PT}$ and $\overline{PR}$ are tangents, and $m\angle TOR = 150^\circ$. If $OR = 6$ cm, then what is the measure of $\angle TPR$?

A. 15° B. 30°

C. 105° D. 210°