Name: _____ Date: _____

Fresh Math

Constructing Lines Angles - Medium

Name the figure that the compass-and-straightedge steps construct, or find the angle.

1. An angle of 64° is bisected, and then one of the new angles is bisected. What is the smallest angle formed?

2. An angle of 152° is bisected, and then one of the new angles is bisected. What is the smallest angle formed?

3. Draw a line through P that crosses line l. Copy the angle formed at l so that it has its vertex at P on the same side.

4. Draw an arc centered at the vertex of angle A. Draw the same arc centered at a new point. Measure between the arc's crossings on angle A and transfer that distance.

5. An angle of 104° is bisected, and then one of the new angles is bisected again. What is the smallest angle formed?

6. With the compass at each endpoint of segment AB and the same radius (more than half of AB), draw arcs above and below AB. Connect the two intersection points.

7. Draw segment AB. With the compass set to AB, draw arcs centered at A and at B. Connect A and B to the intersection point.

8. From point P on line l, draw arcs crossing l on both sides at the same distance. From those two points draw arcs that meet above P. Connect P to that point.

9. Draw a ray. Set the compass to the length of segment AB, place the point on the endpoint of the ray, and draw an arc that crosses the ray.

10. With the compass at the vertex, draw an arc crossing both sides. From each crossing, draw arcs with the same radius that meet inside the angle. Draw a ray from the vertex through that point.

Name: _____ Date: _____

Constructing Lines Angles - Medium

Name the figure that the compass-and-straightedge steps construct, or find the angle.

11. An angle of 168° is bisected, and then one of the new angles is bisected again. What is the smallest angle formed?

12. An angle of 120° is bisected, and then one of the new angles is bisected. What is the smallest angle formed?

13. An angle of 56° is bisected, and then one of the new angles is bisected again. What is the smallest angle formed?

14. An angle of 64° is bisected, and then one of the new angles is bisected again. What is the smallest angle formed?

15. From point P off line l, draw an arc crossing l twice. From those two points draw arcs that meet on the other side of l. Connect P to that point.

16. An angle of 136° is bisected, and then one of the new angles is bisected. What is the smallest angle formed?

17. An angle of 80° is bisected, and then one of the new angles is bisected. What is the smallest angle formed?

18. An angle of 168° is bisected, and then one of the new angles is bisected. What is the smallest angle formed?

19. An angle of 88° is bisected, and then one of the new angles is bisected. What is the smallest angle formed?

20. An angle of 128° is bisected, and then one of the new angles is bisected again. What is the smallest angle formed?

Constructing Lines Angles - Medium - Answer Key

1. An angle of 64° is bisected, and then one of the new angles is bisected. What is the smallest angle formed?
   16°

2. An angle of 152° is bisected, and then one of the new angles is bisected. What is the smallest angle formed?
   38°

3. Draw a line through P that crosses line l. Copy the angle formed at l so that it has its vertex at P on the same side.
   a line through P parallel to line l (corresponding angles)

4. Draw an arc centered at the vertex of angle A. Draw the same arc centered at a new point. Measure between the arc's crossings on angle A and transfer that distance.
   a copy of angle A

5. An angle of 104° is bisected, and then one of the new angles is bisected again. What is the smallest angle formed?
   13°

6. With the compass at each endpoint of segment AB and the same radius (more than half of AB), draw arcs above and below AB. Connect the two intersection points.
   the perpendicular bisector of AB

7. Draw segment AB. With the compass set to AB, draw arcs centered at A and at B. Connect A and B to the intersection point.
   an equilateral triangle (and a 60° angle)

8. From point P on line l, draw arcs crossing l on both sides at the same distance. From those two points draw arcs that meet above P. Connect P to that point.
   a perpendicular to line l through a point on the line

9. Draw a ray. Set the compass to the length of segment AB, place the point on the endpoint of the ray, and draw an arc that crosses the ray.
   a copy of segment AB

10. With the compass at the vertex, draw an arc crossing both sides. From each crossing, draw arcs with the same radius that meet inside the angle. Draw a ray from the vertex through that point.
    the angle bisector

Constructing Lines Angles - Medium - Answer Key

11. An angle of 168° is bisected, and then one of the new angles is bisected again. What is the smallest angle formed?
    21°

12. An angle of 120° is bisected, and then one of the new angles is bisected. What is the smallest angle formed?
    30°

13. An angle of 56° is bisected, and then one of the new angles is bisected again. What is the smallest angle formed?
    7°

14. An angle of 64° is bisected, and then one of the new angles is bisected again. What is the smallest angle formed?
    8°

15. From point P off line l, draw an arc crossing l twice. From those two points draw arcs that meet on the other side of l. Connect P to that point.
    a perpendicular to line l through a point not on the line

16. An angle of 136° is bisected, and then one of the new angles is bisected. What is the smallest angle formed?
    34°

17. An angle of 80° is bisected, and then one of the new angles is bisected. What is the smallest angle formed?
    20°

18. An angle of 168° is bisected, and then one of the new angles is bisected. What is the smallest angle formed?
    42°

19. An angle of 88° is bisected, and then one of the new angles is bisected. What is the smallest angle formed?
    22°

20. An angle of 128° is bisected, and then one of the new angles is bisected again. What is the smallest angle formed?
    16°