Locus and Constructions Study Guide

1. A given point is 10 units from a given line. What is the total number of points that are 6 units from the line and 5 units from this point?

2. Write the equation of the locus of points 7 units from the origin.

3. Write the equation of the locus of points 5 units from $(4, -2)$.

4. Write the equation of the locus of points equidistant from the points $(-4, 5)$ and $(-4, -7)$.

5. Write the equation of the locus of points equidistant from the points $(1, 6)$ and $(9, 6)$.

6. Write the equation of the circle with a center at $(-8, 10)$ and a radius of $\sqrt{15}$ units.

7. How many of points in a plane are 5 units from a given line and 7 units from a given point on the line?

8. Two points G and H are 15 units apart. How many points are equidistant from both G and H and also 6 units from G?

9. Parallel lines r and w are 14 feet apart, and L is a point on line r. How many points are equidistant from r and w and also 7 feet from L?

10. Parallel lines r and w are 10 feet apart, and L is a point on line r. How many points are equidistant from r and w and also 7 feet from L?

11. A given point V is 12 units from a given line. How many points are 5 units from the line and 3 units from point V?

12. Write the equation of the locus of points 4 units from the y-axis.

13. Write the equation of the locus of points 7 units from the x-axis.

14. Write the equation of the locus of points 3 units from the line $x = 2$.

15. Write the equation of the locus of points 8 units from the line $y = 5$.

16. Describe fully the locus of points equidistant from the lines $x = -7$ and $x = 1$.

17. Describe fully the locus of points equidistant from the lines $y = -6$ and $y = 8$.

18. What is the total number of points equidistant from both the x- and y-axes and 6 units from the origin?

19. Construct the perpendicular bisector of the segment below.

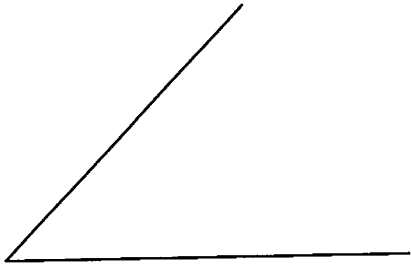20. Construct a line perpendicular to the given line through the given point *on* the line.

21. Construct a line perpendicular to the given line through the given point *not on* the line.

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22. Construct an angle congruent to the given angle.
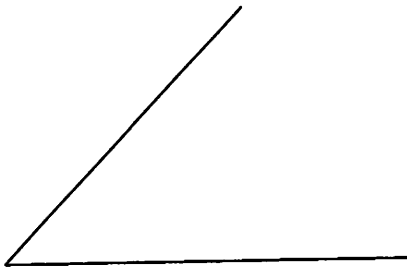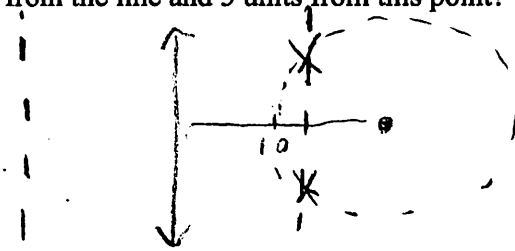
23. Construct the angle bisector of the angle below.

24. Construct an equilateral triangle using the segment below as the length of each side.

Locus and Constructions Study Guide

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2 Points

2. Write the equation of the locus of points 7 units from the origin.

$$x^2 + y^2 = 49$$

3. Write the equation of the locus of points 5 units from $(4,-2)$.

$$(x-h)^2 + (y-k)^2 = r^2$$

$$(x-4)^2 + (y+2)^2 = 25$$

4. Write the equation of the locus of points equidistant from the points $(-4,5)$ and $(-4,-7)$.

$$y = -1$$

5. Write the equation of the locus of points equidistant from the points $(1,6)$ and $(9,6)$.

$$x = 5$$

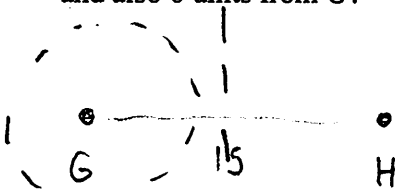6. Write the equation of the circle with a center at $(-8,10)$ and a radius of $\sqrt{15}$ units.

$$(x+8)^2 + (y-10)^2 = 15$$

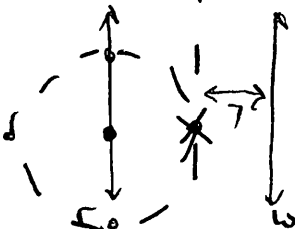7. How many of points in a plane are 5 units from a given line and 7 units from a given point on the line?
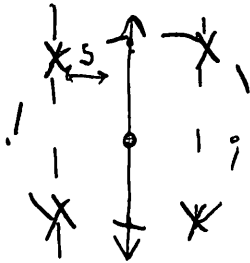
4   Locations

8. Two points *G* and *H* are 15 units apart. How many points are equidistant from both *G* and *H* and also 6 units from *G*?
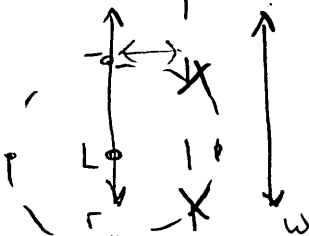
0   Points

9. Parallel lines *r* and *w* are 14 feet apart, and *L* is a point on line *r*. How many points are equidistant from *r* and *w* and also 7 feet from *L*?
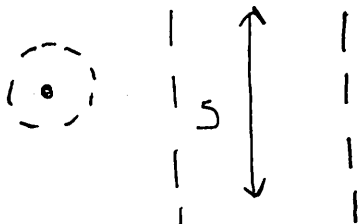
1   Point

10. Parallel lines *r* and *w* are 10 feet apart, and *L* is a point on line *r*. How many points are equidistant from *r* and *w* and also 7 feet from *L*?

2   Points

11. A given point *V* is 12 units from a given line. How many points are 5 units from the line and 3 units from point *V*?

0   Points

12. Write the equation of the locus of points 4 units from the *y*-axis.

$X = 4$

$X = -4$

13. Write the equation of the locus of points 7 units from the *x*-axis.

$$y = 7$$
$$y = -7$$

14. Write the equation of the locus of points 3 units from the line $x = 2$.

$$x = 5$$
$$x = -1$$

15. Write the equation of the locus of points 8 units from the line $y = 5$.

$$y = 13$$
$$y = -3$$

16. Describe fully the locus of points equidistant from the lines $x = -7$ and $x = 1$.
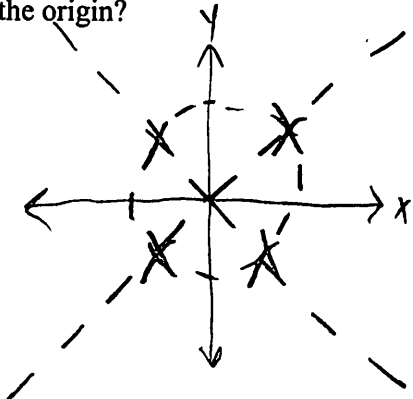
All points that lie on the line

$$x = -3$$

17. Describe fully the locus of points equidistant from the lines $y = -6$ and $y = 8$.
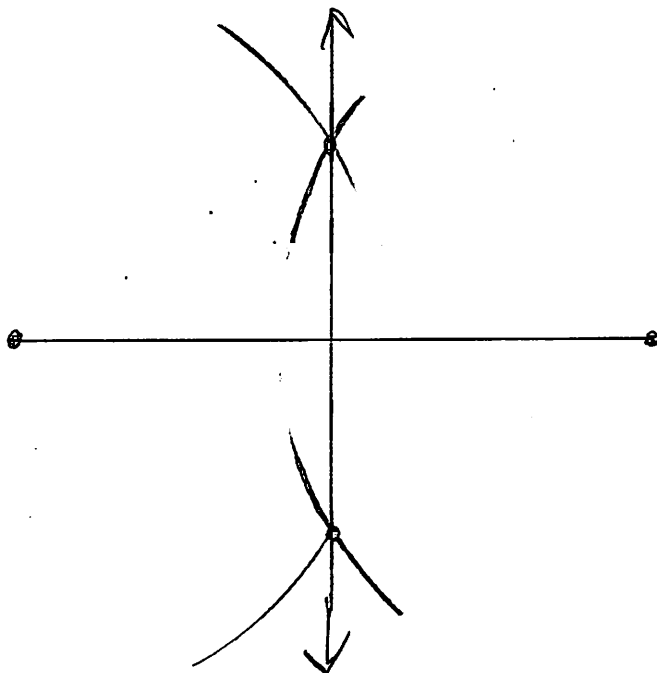
All points that lie on the line

$$y = 1$$

18. What is the total number of points equidistant from both the *x*- and *y*-axes and 6 units from the origin?
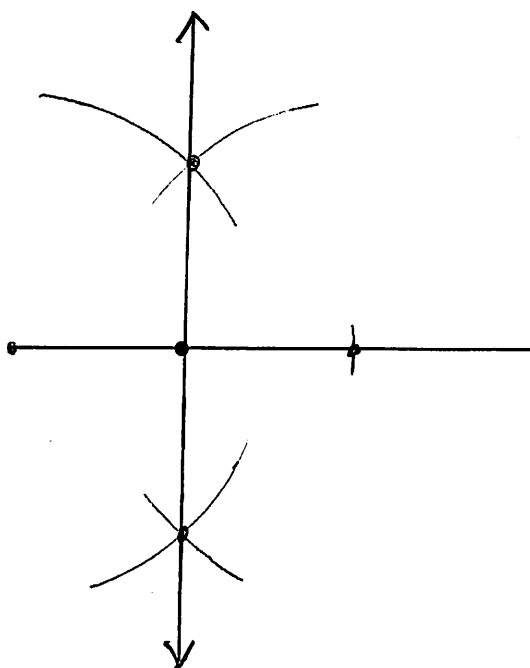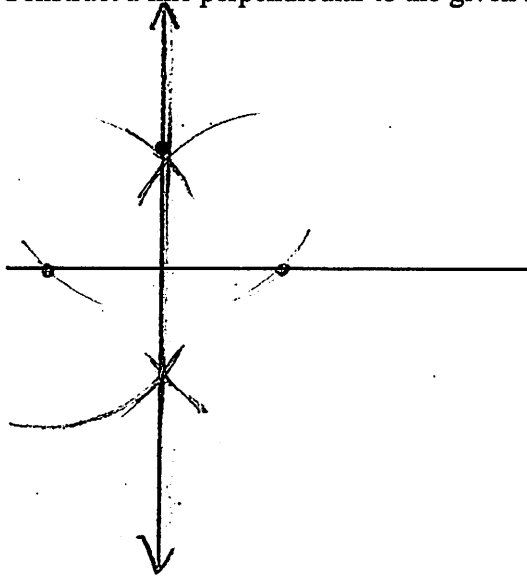
4 Locations

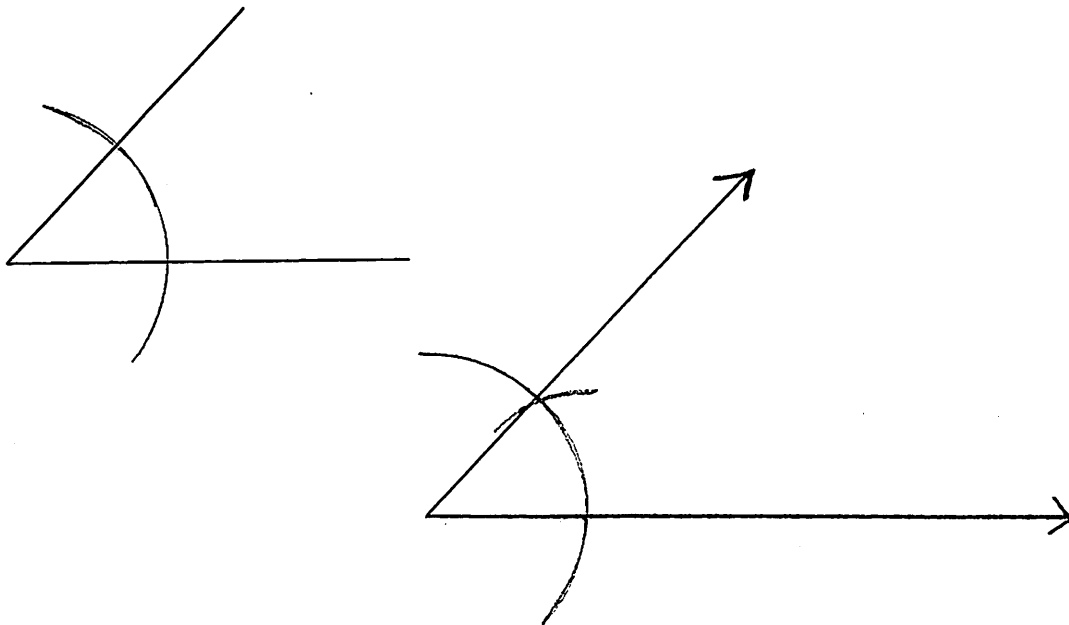19. Construct the perpendicular bisector of the segment below.

20. Construct a line perpendicular to the given line through the given point *on* the line.
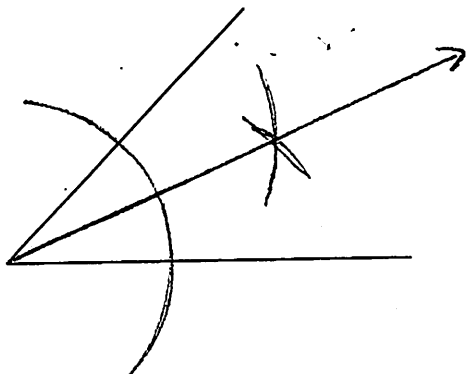
21. Construct a line perpendicular to the given line through the given point *not on* the line.

22. Construct an angle congruent to the given angle.

23. Construct the angle bisector of the angle below.

24. Construct an equilateral triangle using the segment below as the length of each side.