|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. Determine whether the statement is true or false.  The circle with equation lies inside the circle with equation provided   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2. Determine whether the statement is true or false.  The point ( -*a*, -*b*) is symmetric to the point (*a*, -*b*) with respect to the *y*-axis.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3. Ivan wishes to determine which antenna he should purchase for his home. The TV store has supplied him with the information:   |  |  |  |  | | --- | --- | --- | --- | | **Range in Miles** | |  | | | VHF | UHF | Model | Price | | 30 | 20 | A | $40 | | 45 | 35 | B | $50 | | 60 | 40 | C | $60 | | 75 | 55 | D | $70 |   Ivan wishes to receive Channel 17 (VHF) that is located 22 mi east and 41 mi north of his home and Channel 38 (UHF) that is located 24 mi south and 44 mi west of his home. Which model will allow him to receive both channels at the least cost? (Assume that the terrain between Ivan's home and both broadcasting stations is flat.)   |  |  |  | | --- | --- | --- | |  | a. | Model B | |  | b. | Model A | |  | c. | Model D | |  | d. | Model C |  |  |  | | --- | --- | | *ANSWER:* | c | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4. Find an equation of the circle that satisfies the conditions.  Center and passes through .   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. |  | |  | c. |  | |  | d. |  | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | b | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5. Find the coordinates of the points that are units away from the origin and have an *x*-coordinate equal to .   |  |  |  | | --- | --- | --- | |  | a. | and | |  | b. | and | |  | c. | and | |  | d. |  | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | b | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6. Find the distance between the points and .   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. |  | |  | c. |  | |  | d. |  | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | c | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7. A furniture store offers free setup and delivery services to all points within a 23-mi radius of its warehouse distribution center. If you live 19 mi east and 14 mi south of the warehouse, will you incur a delivery charge?   |  |  |  | | --- | --- | --- | |  | a. | Yes | |  | b. | No |  |  |  | | --- | --- | | *ANSWER:* | a | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8. Ship *A* leaves port sailing north at a speed of 25 mph. A half hour later, ship *B* leaves the same port sailing east at a speed of 20 mph. Let *t* (in hours) denote the time ship *B* has been at sea. Find an expression in terms of *t* giving the distance between the two ships and use this expression to find the distance between the two ships 2 hours after ship *A* has left port. Round the answer to the nearest tenth.   |  |  |  | | --- | --- | --- | |  | a. | 51.3 mi | |  | b. | 56.8 mi | |  | c. | 59.3 mi | |  | d. | 58.3 mi | |  | e. | 60.3 mi |  |  |  | | --- | --- | | *ANSWER:* | d | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9. Plot point (- 4, - 7) on the set of coordinate axes.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. |  | b. |  | |  | c. |  | d. |  | |  | e. |  |  |  |  |  |  | | --- | --- | | *ANSWER:* | d | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10. Plot point (, 2) on the set of coordinate axes.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. |  | b. |  | |  | c. |  | d. |  | |  | e. |  |  |  |  |  |  | | --- | --- | | *ANSWER:* | b | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11. Two ships leave port at the same time. Ship *A* sails north at a speed of 16 mph while ship *B* sails east at a speed of 24 mph.  a. Find an expression in terms of the time *t* (in hours) giving the distance between the two ships. b. Using the expression obtained in part (a), find the distance between the two ships 5 hr after leaving port.   |  |  |  | | --- | --- | --- | |  | a. | and 144.2 | |  | b. | and 139.2 | |  | c. | and 144.2 | |  | d. | and 149.2 | |  | e. | and 149.2 |  |  |  | | --- | --- | | *ANSWER:* | a | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12. The circle with equation *kx*2 + *ky*2 = *a*2 lies outside the circle with equation *x*2 + *y*2 = *a*2 means.   |  |  |  | | --- | --- | --- | |  | a. | *k* ≥ 1 | |  | b. | *k* < 1 | |  | c. | *k* ≤ 1 | |  | d. | *k* > 1 | |  | e. | these curves are intersecting |  |  |  | | --- | --- | | *ANSWER:* | b | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13. A grand tour of four cities begins at city *A* and makes successive stops at cities *B*, *C*, and *D* before returning to city *A*. If the cities are located as shown in the following figure, find the total distance covered on the tour.   |  |  |  | | --- | --- | --- | |  | a. | 3,400 mi | |  | b. | 3,100 mi | |  | c. | 3,500 mi | |  | d. | 3,000 mi | |  | e. | 3,600 mi |  |  |  | | --- | --- | | *ANSWER:* | a | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14. Find an equation of the circle with center at (-*a*, *a*) and radius 3*a*.   |  |  |  | | --- | --- | --- | |  | a. | (*x* - *a*)2 + (*y* - *a*)2  = 9*a*2 | |  | b. | *x*2 + *y*2  = 9 | |  | c. | *x*2 + *y*2  = 9*a* | |  | d. | (*x* + *a*)2 + (*y* - *a*)2  = 9*a*2 | |  | e. | (*x* + *a*)2 + (*y* + *a*)2  = 9*a*2 |  |  |  | | --- | --- | | *ANSWER:* | d | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15. Find an equation of the circle with center at the origin that passes through (5, 4).   |  |  |  | | --- | --- | --- | |  | a. | *x*2 + *y*2 = 14 | |  | b. | (*x* + 6)2 + (*y* + 1)2 = 8 | |  | c. | *x*2 + *y*2 = 41 | |  | d. | (*x* - 2)2 + (*y* + 6)2 = 14 | |  | e. | (*x* - 6)2 + (*y* + 6)2 = 1 |  |  |  | | --- | --- | | *ANSWER:* | c | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16. Find an equation of the circle with radius 1 and center (3, 1).   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. |  | |  | c. |  | |  | d. |  | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | a | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17. If the equation of circle is . Find the radius of the circle with centre at the origin.   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. |  | |  | c. |  | |  | d. |  | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | c | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18. Find the coordinates of the points that are 10 units away from the origin and have a *y*-coordinate equal to –6.   |  |  |  | | --- | --- | --- | |  | a. | and | |  | b. | and | |  | c. | and | |  | d. | and | |  | e. | and |  |  |  | | --- | --- | | *ANSWER:* | a | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19. Refer to the following figure and determine the coordinates of point *A* and the quadrant in which it is located.   |  |  |  | | --- | --- | --- | |  | a. | (4, 5) and first quadrant | |  | b. | (-3, 5) and first quadrant | |  | c. | (4, 5) and third quadrant | |  | d. | (3, 3) and third quadrant | |  | e. | (3, 3) and first quadrant |  |  |  | | --- | --- | | *ANSWER:* | e | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20. Find the distance between the points (3, –4) and (6, 4).   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. |  | |  | c. |  | |  | d. |  | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | b | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21. Refer to the following figure. Which point has an *x*-coordinate that is equal to zero?   |  |  |  | | --- | --- | --- | |  | a. | F | |  | b. | A | |  | c. | B | |  | d. | E | |  | e. | C |  |  |  | | --- | --- | | *ANSWER:* | c | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22. Refer to the following figure. Which points have a negative *x*-coordinate and a positive *y*-coordinate?   |  |  |  | | --- | --- | --- | |  | a. | E | |  | b. | A, B | |  | c. | D | |  | d. | C, A, B | |  | e. | F, G |  |  |  | | --- | --- | | *ANSWER:* | e | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 23. Refer to the following figure. Which point has a *y*-coordinate that is equal to zero?   |  |  |  | | --- | --- | --- | |  | a. | G | |  | b. | B | |  | c. | E | |  | d. | C | |  | e. | A |  |  |  | | --- | --- | | *ANSWER:* | b | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 24. Refer to the following figure. Which points have a negative *x*-coordinate and a negative *y*-coordinate?   |  |  |  | | --- | --- | --- | |  | a. | A, C, B | |  | b. | G, C | |  | c. | E, A | |  | d. | B | |  | e. | D, F |  |  |  | | --- | --- | | *ANSWER:* | e | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 25. Refer to the following figure. Which points have negative *y*-coordinates?   |  |  |  | | --- | --- | --- | |  | a. | A, B, D | |  | b. | F, A, E, C | |  | c. | G, D, B | |  | d. | F, A, D, G | |  | e. | E, B, C |  |  |  | | --- | --- | | *ANSWER:* | c | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 26. Refer to the following figure. Which points have a positive *x*-coordinate and a negative *y*-coordinate?   |  |  |  | | --- | --- | --- | |  | a. | D | |  | b. | A, B | |  | c. | F, G | |  | d. | E | |  | e. | C, A, B |  |  |  | | --- | --- | | *ANSWER:* | a | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 27. Refer to the following figure. Which point has coordinates (-3, 4)?   |  |  |  | | --- | --- | --- | |  | a. | A | |  | b. | B | |  | c. | G | |  | d. | D | |  | e. | C |  |  |  | | --- | --- | | *ANSWER:* | e | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28. Refer to the following figure. What are the coordinates of point B?   |  |  |  | | --- | --- | --- | |  | a. | (4, 10) | |  | b. | (-3, 3) | |  | c. | (10, -6) | |  | d. | (14, 14) | |  | e. | (-9, -13) |  |  |  | | --- | --- | | *ANSWER:* | b | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 29. Refer to the following figure. What are the coordinates of point A?   |  |  |  | | --- | --- | --- | |  | a. | (-2, 0) | |  | b. | (2, 2) | |  | c. | (2, 0) | |  | d. | (-2, -2) | |  | e. | (2, -2) |  |  |  | | --- | --- | | *ANSWER:* | c | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30. Determine which statements are true.   |  |  |  | | --- | --- | --- | |  | a. | The point (a, *b*) is symmetric to the point (-*a*, *b*) with respect to the origin. | |  | b. | The point (*a*, b) is symmetric to the point (*a*, -*b*) with respect to the *x*-axis. | |  | c. | The point (a, -*b*) is symmetric to the point (-*a*, b) with respect to the *y*-axis. | |  | d. | The point (a, -*b*) is symmetric to the point (-*a*, b) with respect to the origin. | |  | e. | The point (a, *b*) is symmetric to the point (-*a*, *b*) with respect to the *y*-axis. |  |  |  | | --- | --- | | *ANSWER:* | b, d, e | |

|  |  |  |
| --- | --- | --- |
| 31. A grand tour of four cities begins at city *A* and makes successive stops at cities *B*, *C*, and *D* before returning to city *A*. If the cities are located as shown in the following figure, find the total distance covered on the tour.    \_\_\_\_\_\_\_\_\_\_mi   |  |  | | --- | --- | | *ANSWER:* | 3,400 | |

|  |  |  |
| --- | --- | --- |
| 32. Find the distance between the points and .   |  |  | | --- | --- | | *ANSWER:* |  | |

|  |  |  |
| --- | --- | --- |
| 33. Find the coordinates of the points that are 13 units away from the origin and have an *x*-coordinate equal to 5.   |  |  | | --- | --- | | *ANSWER:* | (5, 12), (5, -12) | |

|  |  |  |
| --- | --- | --- |
| 34. Find an equation of the circle that satisfies the conditions.  Center and passes through .   |  |  | | --- | --- | | *ANSWER:* |  | |

|  |  |  |
| --- | --- | --- |
| 35. Find an equation of the circle with center at (-*a*, -*a*) and radius 6*a*.   |  |  | | --- | --- | | *ANSWER:* |  | |

|  |  |  |
| --- | --- | --- |
| 36. Find an equation of the circle with center at the origin that passes through (3, 3).   |  |  | | --- | --- | | *ANSWER:* |  | |

|  |  |  |
| --- | --- | --- |
| 37. Find an equation of the circle with radius 1 and center (–3, –1).   |  |  | | --- | --- | | *ANSWER:* |  | |

|  |  |  |
| --- | --- | --- |
| 38. Refer to the following figure. Which points have a negative *x*-coordinate and a negative *y*-coordinate?   |  |  | | --- | --- | | *ANSWER:* | G, E, B | |

|  |  |  |
| --- | --- | --- |
| 39. Refer to the following figure. Which points have negative *y*-coordinates?   |  |  | | --- | --- | | *ANSWER:* | E, F, B, A | |

|  |  |  |
| --- | --- | --- |
| 40. Refer to the following figure. Which point has coordinates (-8, 3)?   |  |  | | --- | --- | | *ANSWER:* | B | |

|  |  |  |
| --- | --- | --- |
| 41. Refer to the following figure. What are the coordinates of point C?   |  |  | | --- | --- | | *ANSWER:* | (-6, 3) | |

|  |  |  |
| --- | --- | --- |
| 42. Find the coordinates of the points that are 13 units away from the origin and have a *y*-coordinate equal to –12.   |  |  | | --- | --- | | *ANSWER:* |  | |

|  |  |  |
| --- | --- | --- |
| 43. Refer to the following figure. Which point has a *y*-coordinate that is equal to zero?   |  |  | | --- | --- | | *ANSWER:* | B | |

|  |  |  |
| --- | --- | --- |
| 44. Find the distance between the points (–1, –3) and (5, 8).   |  |  | | --- | --- | | *ANSWER:* |  | |

|  |  |  |
| --- | --- | --- |
| 45. Refer to the following figure. Which point has an *x*-coordinate that is equal to zero?   |  |  | | --- | --- | | *ANSWER:* | C | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 46. Ivan wishes to determine which antenna he should purchase for his home. The TV store has supplied him with the information:   |  |  |  |  | | --- | --- | --- | --- | | **Range in Miles** | |  | | | VHF | UHF | Model | Price | | 30 | 20 | A | $40 | | 45 | 35 | B | $50 | | 60 | 40 | C | $60 | | 75 | 55 | D | $70 |   Ivan wishes to receive Channel 17 (VHF) that is located 20 mi east and 45 mi north of his home and Channel 38 (UHF) that is located 23 mi south and 33 mi west of his home. Which model will allow him to receive both channels at the least cost? (Assume that the terrain between Ivan's home and both broadcasting stations is flat.)  Model \_\_\_\_\_\_\_\_\_\_   |  |  | | --- | --- | | *ANSWER:* | D | |

|  |  |  |
| --- | --- | --- |
| 47. A furniture store offers free setup and delivery services to all points within a 24-mi radius of its warehouse distribution center. If you live 20 mi east and 14 mi south of the warehouse, will you incur a delivery charge? Justify your answer.   |  |  | | --- | --- | | *ANSWER:* | Yes. The distance mi between house and warehouse is more than 24 mi. | |