

Polar Coordinates - Homework #1

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Name _____

In Exercises 1-8, the points are expressed using polar coordinates. Graph the points. Feel free to use the polar grid template from my website (pat-rossi.com >> Academic Links >> MTH 2227 >> Handouts >> Polar Grid) to graph the points.

1. $(r, \theta) = (2, \frac{\pi}{4})$

2. $(r, \theta) = (4, \frac{2\pi}{3})$

3. $(r, \theta) = (5, \frac{4\pi}{3})$

4. $(r, \theta) = (1, \frac{11\pi}{6})$

5. $(r, \theta) = (2, \frac{5\pi}{6})$

6. $(r, \theta) = (4, \frac{\pi}{6})$

7. $(r, \theta) = (2, -\frac{\pi}{4})$

8. $(r, \theta) = (-3, \frac{\pi}{6})$

In Exercises 9-16, the given point is expressed in rectangular coordinates. Express the same point in polar coordinates.

9. $(x, y) = (4, 4)$

10. $(x, y) = (-\frac{5}{2}, \frac{5\sqrt{3}}{2})$

11. $(x, y) = (3, 0)$

12. $(x, y) = (0, -4)$

13. $(x, y) = (-\sqrt{3}, 1)$

14. $(x, y) = (-2, -2)$

15. $(x, y) = (-6, -\frac{6}{\sqrt{3}})$

16. $(x, y) = (2, \frac{-2\sqrt{3}}{3})$

In Exercises 17-24, the given point is expressed in polar coordinates. Express the same point in rectangular coordinates.

17. $(r, \theta) = (2, \frac{\pi}{4})$

18. $(r, \theta) = (4, \frac{2\pi}{3})$

19. $(r, \theta) = (5, \frac{4\pi}{3})$

20. $(r, \theta) = (1, \frac{11\pi}{6})$

21. $(r, \theta) = (2, \frac{5\pi}{6})$

22. $(r, \theta) = (4, \frac{\pi}{6})$

23. $(r, \theta) = (2, -\frac{\pi}{4})$

24. $(r, \theta) = (-3, \frac{\pi}{6})$