

Determine the rectangular coordinates for each given polar point. Give *exact* answer. Plot points to check answer.

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|---------------------|---------------------|-----------------------|-----------------------|
| 1. $(4, 30^\circ)$ | 2. $(2, 45^\circ)$ | 3. $(-3, 120^\circ)$ | 4. $(-5, 135^\circ)$ |
| 5. $(7, -60^\circ)$ | 6. $(6, -45^\circ)$ | 7. $(-6, -150^\circ)$ | 8. $(-3, -120^\circ)$ |

Determine a pair of polar coordinates for each pair of rectangular coordinates.

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|------------------------------|------------------------------|-----------------------------|----------------------|----------------------|
| 9. $(4, 0)$ | 10. $(0, -3)$ | 11. $(-2, 2)$ | 12. $(\sqrt{3}, -1)$ | 13. $(-1, \sqrt{3})$ |
| 14. $(-\sqrt{2}, -\sqrt{2})$ | 15. $(-\sqrt{5}, -\sqrt{5})$ | 16. $(-\sqrt{2}, \sqrt{6})$ | | |

Determine the four pair of polar coordinates (r, θ) which meet the following criteria:

- a) $r > 0, \theta > 0$ b) $r < 0, \theta > 0$ c) $r > 0, \theta < 0$ d) $r < 0, \theta < 0$
17. A _____ 18. B _____ 19. C _____ 20. D _____

