

MTH 162 Homework 13

Do the first five problems. Due: Apr 23, 2014 (Wednesday). Hand in to me during the class.

Compulsory:

Ex 9.3

13–16 ■ Identify the curve by finding a Cartesian equation for the curve.

13. $r = 2 \cos \theta$

17–20 ■ Find a polar equation for the curve represented by the given Cartesian equation.

17. $y = 1 + 3x$

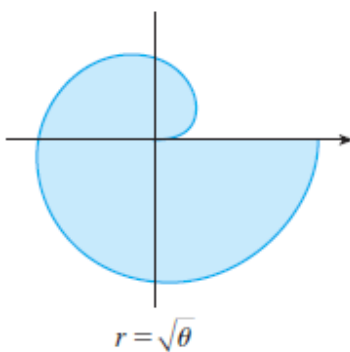
47–50 ■ Find the slope of the tangent line to the given polar curve at the point specified by the value of θ .

48. $r = 2 - \sin \theta, \quad \theta = \pi/3$

Ex 9.4

5–8 ■ Find the area of the shaded region.

5.



33–36 ■ Find the exact length of the polar curve.

33. $r = 3 \sin \theta, \quad 0 \leq \theta \leq \pi/3$

(What's this curve geometrically?)

Recommended: (These types of questions may also appear in the exams)

Ex 9.3

13–16 ■ Identify the curve by finding a Cartesian equation for the curve.

13. $r = 2 \cos \theta$

14. $\theta = \pi/3$

15. $r^2 \cos 2\theta = 1$

16. $r = \tan \theta \sec \theta$

17–20 ■ Find a polar equation for the curve represented by the given Cartesian equation.

17. $y = 1 + 3x$

18. $4y^2 = x$

19. $x^2 + y^2 = 2cx$

20. $xy = 4$

47–50 ■ Find the slope of the tangent line to the given polar curve at the point specified by the value of θ .

47. $r = 2 \sin \theta, \theta = \pi/6$

48. $r = 2 - \sin \theta, \theta = \pi/3$

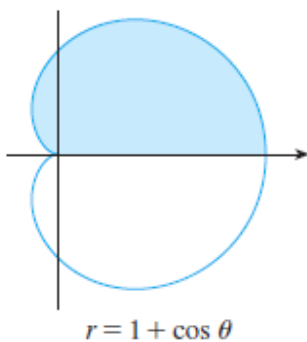
49. $r = 1/\theta, \theta = \pi$

50. $r = \cos(\theta/3), \theta = \pi$

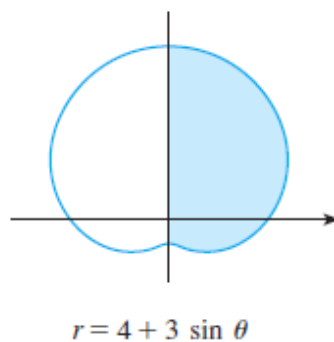
Ex 9.4

5–8 ■ Find the area of the shaded region.

6.



7.



8.

