

Graph the following polar equations.

1. $r = \cos \theta$ 2. $r = \sin \theta$ 3. $r = -\cos \theta$ 4. $r = -\sin \theta$

5. $r = 3\cos \theta$ 6. $r = 3\sin \theta$ 7. $r = -3\cos \theta$ 8. $r = -3\sin \theta$

9. $r = 5\cos \theta$ 10. $r = 5\sin \theta$ 11. $r = -5\cos \theta$ 12. $r = -5\sin \theta$

Graph the following polar equations.

1. $r = 1 + \cos \theta$ 2. $r = 1 - \cos \theta$ 3. $r = -1 - \cos \theta$

4. $r = -1 + \cos \theta$ 5. $r = 4 + 4\sin \theta$ 6. $r = 4 - 4\sin \theta$

7. $r = -4 - 4\sin \theta$ 8. $r = -4 + 4\sin \theta$

If $r = 4 + 4\sin \theta$

1. What is the value of r when
 $\theta = 0$?

2. What is the value of θ when
 $r = 0$?

3. What is the value of θ when
 $r = 4$?

$r = 1 - \cos \theta$

1. What is the value of r when
 $\theta = 0$?

2. What is the value of θ when
 $r = 0$?

3. What is the value of θ when
 $r = 1$?

Graph the following polar equations.

1. $r = 1 + 2\cos\theta$

2. $r = 1 - 2\cos\theta$

3. $r = -1 - 2\cos\theta$

4. $r = -1 + 2\cos\theta$

5. $r = 2 + 5\sin\theta$

6. $r = 2 - 5\sin\theta$

7. $r = -2 - 5\sin\theta$

8. $r = -2 + 5\sin\theta$

If $r = 2 - 5\sin\theta$

1. What is the value of r when
 $\theta = 0$?

2. What is the value of θ when
 $\theta = \pi$?

3. What is the value of θ when
 $r = 2$?

$r = 1 + 2\cos\theta$

1. What is the value of r when
 $\theta = 0$?

2. What is the value of θ when
 $\theta = \pi$?

3. What is the value of θ when
 $r = 1$?

Graph the following polar equations.

1. $r = 4 + 3\cos \theta$ 2. $r = 4 - 3\cos \theta$ 3. $r = -4 - 3\cos \theta$

4. $r = -4 + 3\cos \theta$ 5. $r = 2 + \sin \theta$ 6. $r = 2 - \sin \theta$

7. $r = -2 - \sin \theta$ 8. $r = -2 + \sin \theta$

If $r = 4 + 3\cos \theta$

1. What is the value of r when
 $\theta = 0$?

2. What is the value of θ when
 $\theta = \pi$?

3. What is the value of θ when
 $r = 4$?

$r = 2 + \sin \theta$

1. What is the value of r when
 $\theta = 0$?

2. What is the value of θ when
 $\theta = \pi$?

3. What is the value of θ when
 $r = 2$?

Graph the following polar equations.

1. $r = 3\cos 2\theta$ 2. $r = 3\cos 3\theta$ 3. $r = 4\sin 2\theta$

4. $r = 4\sin 3\theta$ 5. $r = 4\sin 4\theta$ 6. $r = 4\sin 5\theta$

7. $r = 4\cos 5\theta$ 8. $r = 4\cos 5\theta$