Multiple choice questions - Parametric equations

Year: Year 13 · 10

Question 1 Eliminating t from $x = t + 1,\ y = t^2$ gives

- ◯ **A.** $y = (x-1)^2$
- ◯ **B.** $y = (x+1)^2$
- ◯ **C.** $y = x^2 - 1$
- ◯ **D.** $y = x - 1$

Question 2 $x = 2\cos t,\ y = 2\sin t$ is

- ◯ **A.** an ellipse
- ◯ **B.** a circle of radius 2
- ◯ **C.** a parabola
- ◯ **D.** a circle of radius 4

Question 3 $x = 3t,\ y = \dfrac{2}{t}$ has Cartesian equation

- ◯ **A.** $xy = 2$
- ◯ **B.** $y = 6x$
- ◯ **C.** $xy = 6$
- ◯ **D.** $x + y = 6$

Question 4 For $x = \sin t$, the range of x is

- ◯ **A.** $x \geq 0$
- ◯ **B.** all real
- ◯ **C.** $0 \leq x \leq 1$
- ◯ **D.** $-1 \leq x \leq 1$

Question 5 $x = e^t$ means that x is

- ◯ **A.** positive
- ◯ **B.** negative
- ◯ **C.** any real
- ◯ **D.** between -1 and 1

Question 6 The curve $x = t^2,\ y = 2t$ passes through (4,4) when $t =$

- ◯ **A.** 4
- ◯ **B.** 2

- **C.** -2
- **D.** 1

Question 7 To find where a curve meets the x-axis you set

- **A.** $x = 0$
- **B.** $t = 0$
- **C.** $y = 0$
- **D.** $x = y$

Question 8 $x = \cos 2t,\ y = \sin t$ gives

- **A.** $x = 2y^2 - 1$
- **B.** $x = 1 + 2y^2$
- **C.** $x^2 + y^2 = 1$
- **D.** $x = 1 - 2y^2$

Question 9 The curve $x = a\cos t,\ y = b\sin t$ is an

- **A.** ellipse
- **B.** hyperbola
- **C.** parabola
- **D.** straight line

Question 10 Two different values of t giving the same point means the curve

- **A.** is a circle
- **B.** crosses itself
- **C.** is a straight line
- **D.** has no gradient

Answer grid - Parametric equations

Year: Year 13

Question	Answer	Explanation
1	**A**	t=x-1.
2	**B**	$x^2+y^2=4$.
3	**C**	Multiply.
4	**D**	Sine bounded.
5	**A**	e^t>0.
6	**B**	$t^2=4$ and $2t=4$.
7	**C**	On the x-axis y=0.
8	**D**	$\cos 2t=1-2\sin^2 t$.
9	**A**	$x^2/a^2+y^2/b^2=1$.
10	**B**	Self-intersection.