

Calculus

Name: _____ Date: _____

Q Test –Prep

To be done after the review study in preparation for a qualifier test in the first week of school

1. Find an equation of the vertical line passing through (2, -6).
(a) $y = -6x$ (b) $y = 2x$ (c) $x = 2$ (d) $y = -6$ (e) None of these

2. Find an equation of the line passing through (2, -6) parallel to the line $2x - 3y = 4$.
(a) $y = \frac{3}{2}x - 3$ (b) $y = -\frac{2}{3}x - 3$ (c) $y = -\frac{3}{2}x - 3$
(d) $y = \frac{3}{2}x + 3$ (e) None of these

3. Find an equation of the line passing through (2, -6) perpendicular to the line $2x - 3y = 4$.
(a) $y = \frac{3}{2}x - 3$ (b) $y = -\frac{2}{3}x - 3$ (c) $y = -\frac{3}{2}x - 3$ (d) $y = \frac{3}{2}x + 3$ (e) None of these

4. Determine if the function is even or odd or neither $y = x - x^3 + x^5$.
(a) even (b) odd (c) neither

5. Determine if the function is even or odd or neither $y = x^2 + \cos x$.
(a) even (b) odd (c) neither

6. The domain of $y = \sqrt{16 - x^2}$
(a) $x \neq 16$ (b) $x < 16$ (c) $(-\infty, -4) \cup (4, \infty)$ (d) $[-4, 4]$ (e) None of these

7. The domain of $y = 3e^{-x} + 2$
(a) $(-\infty, \infty)$ (b) $[2, \infty)$ (c) $(-\infty, -2) \cup (2, \infty)$ (d) $(-\infty, 2]$ (e) None of these

8. The range of $y = 3e^{-x} + 2$
(a) $(-\infty, \infty)$ (b) $(2, \infty)$ (c) $(-\infty, -2) \cup (2, \infty)$ (d) $(-\infty, 2]$ (e) None of these

9. The range of $y = |x - 1| - 3$
(a) $(-\infty, \infty)$ (b) $[-3, \infty)$ (c) $(-\infty, -3) \cup (3, \infty)$ (d) $[-1, 1]$ (e) None of these

10. The domain of $y = \cos x + 2$
(a) $(-\infty, \infty)$ (b) $[2, \infty)$ (c) $[1, 3]$ (d) $[-1, 1]$ (e) None of these

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11. The range of $y = \cos x + 2$
(a) $(-\infty, \infty)$ (b) $[2, \infty)$ (c) $[1, 3]$ (d) $[-1, 1]$ (e) None of these
12. If $f(x) = x^2 + 3$ and $g(x) = \frac{1}{\sqrt{x-1}}$, find $(f \circ g)(-1)$.
(a) $3/2$ (b) 0 (c) $5/2$ (d) undefined (e) None of these
13. If $f(x) = x^2 + 3$ and $g(x) = \frac{1}{\sqrt{x-1}}$, find $(f \circ g)(x)$.
(a) $\frac{1}{\sqrt{x^2+2}}$ (b) $\frac{3x-2}{x-1}$ (c) $\frac{x^2+3}{\sqrt{x-1}}$ (d) $\frac{1}{\sqrt{x^2-1}}$ (e) None of these
14. If $f(x) = x^2 + 3$ and $g(x) = \frac{1}{\sqrt{x-1}}$, the domain of $(f \circ g)(x)$ is
(a) $(-\infty, \infty)$ (b) $[1, \infty)$ (c) $(1, \infty)$ (d) $(0, \infty)$ (e) None of these
15. If $f(x) = x^2 + 3$ and $g(x) = \frac{1}{\sqrt{x-1}}$, the range of $(f \circ g)(x)$ is
(a) $(-\infty, \infty)$ (b) $[1, \infty)$ (c) $(1, \infty)$ (d) $(-\infty, 3) \cup (3, \infty)$ (e) None of these
16. Solve for x: $\log x + \log(x+3) = 1$
(a) 2 (b) 3 (c) 4 (d) -1 (e) None of these
17. Solve for x: $25^{x-2} = 5^{3x}$
(a) -4 (b) 5 (c) -5 (d) 3 (e) None of these
18. A certain population increases according to the model $P(t) = 40e^{0.025t}$. Determine the initial population and the population (to the nearest integer) when $t = 50$, round your answer to the nearest integer
(a) 40, 140 (b) 0, 50 (c) 0.25, 50 (d) 40, 50 (e) None of these
19. The period of the function given by $y = -\frac{4}{3}\cos\left(\frac{3x}{2} - \frac{1}{2}\right)$ is
(a) 6π (b) $\frac{4\pi}{3}$ (c) $\frac{4}{3}$ (d) $\frac{1}{2}$ (e) None of these
20. Which of the following is a vertical asymptote to the graph of $y = \csc 3x$?
(a) $x = \frac{\pi}{2}$ (b) $x = \frac{3\pi}{2}$ (c) $x = \frac{\pi}{3}$ (d) $x = \frac{\pi}{4}$ (e) None of these

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Test -A Key:

1	c	6	d	11	c	16	a
2	e	7	a	12	d	17	a
3	c	8	b	13	b	18	a
4	b	9	b	14	c	19	b
5	a	10	a	15	d	20	c