# Math Precalculus Test -Sample Questions

You have up to 90 minutes to complete 30 multiple choice questions
Calculators and dictionaries are NOT allowed.

Sample Questions

1. $f(x) = 4x^2 - 7x$. Find $\frac{f(a+h) - f(a)}{h}$.

   A) $8a + 2h$ B) $4a + 2h - 7$ C) $8a + 4h - 7$ D) $6a + 2h - 7$

2. Which one of the following has a graph symmetric with respect to the x-axis?

   A) $y = 2|x|$ B) $x = 4y^2$ C) $xy = 3$ D) $(x-2)^2 + (y+1)^2 = 4$

3. Find $(g \quad f)(x)$, if $f(x) = 9(x$ TJ

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7. Find the distance between the points $P(-3,-5)$ and $Q(1,-3)$.

   A) 12 B) 8 C) $4\sqrt{5}$ D) $2\sqrt{5}$

8. Find the equation of the line containing the point (6, -6) and parallel to the line $2y - x = 10$.

   A) $y = -\frac{1}{2}x - 12$ B) $y = -2x - 6$

   C) $y = -2x + 6$ D) $y = \frac{1}{2}x - 9$

9. Which line is perpendicular to $2x + 6y = 1$?

A) $y = -3x + 4$ B) $2x - 6y = 1$ C) $6x - 2y = 1$ D) $2x + 6y = -1$

10. Rationalize the denominator

A) 2 B) 512 C) $\frac{1}{2}$ D) $-2$

19. Solve: $\log_x(\log_2 8) = 2$

A) 3 B) $\frac{3}{2}$ C) $\sqrt{2}$ D) $\sqrt{3}$

20. Solve: $\log_4(x+6) - \log_4 x = 2$

A) $\frac{2}{33}$ B) 2 C) $\frac{5}{2}$ D) $\frac{2}{5}$

21. Solve for t $27^{2t-1} = 81^{t+2}$

A) 3 B) $-3$ C) $-\frac{1}{2}$ D) $\frac{11}{2}$

22. Solve the equation $\sqrt{x+6} + 7 = 9$.

A) 2 B) – 2 C) – 6 D) 6

23. Solve the inequality $|13x - 9| < -3$.

A) $\left(\frac{6}{13}, \frac{12}{13}\right)$ B) $\varnothing$ C) $(-\infty, \infty)$ D) $\left(-\infty, \frac{6}{13}\right) \cup \left(\frac{12}{13}, \infty\right)$

24. Find the inverse of the function $f(x) = \sqrt[3]{x} + 4$.

A) $f^{-1}(x) = (x+4)^3$ B) $f^{-1}(x) = \sqrt[3]{x} - 4$ C) $f^{-1}(x) = (x-4)^3$ D)

29. In which quadrant does θ lie if sin θ < 0 and cos θ > 0?

A) I B) II C) III D) IV

30. Find the period of $y = -4\sin\left(8x + \frac{\pi}{2}\right)$.

A) 8 B) $\pi$ C) 4 D) $\frac{\pi}{4}$

31. Find the exact value of $\cot^{-1}(20)$. Do not use a calculator.

A) $\sqrt{3}$ B) $\sqrt{3}/3$ C) $-\sqrt{3}/3$ D) $-\sqrt{3}$

32. Simplify $\sin\theta(\sec\theta\tan\theta + \csc\theta + \cot\theta)$.

A) $\sin^2\theta - 1 + \cos\theta$ B) $\sec^2\theta + \cos\theta$ C) $\sin\theta + 2\sec\theta$ D) $1 + 2\sin^2\theta$

33. The graph of y = sin x passes thvlˆ›Ü üwd˜hv‘g0vI€n g@ÌÒ@ À ˆ4D) & x Á" €€t0 à $1Qbæ $1Qbæ %~Í ,