

Summer Review Transcendental

Name: _____

Click on the problem to watch a related video.

Note: This packet is a graded assignment. It is due the first week of classes. You must show all the steps to earn full credit. You will be tested on the content in the beginning of the course.

1. Find the domain: $\frac{x+1}{4-x^2}$

- A. $(-\infty, -1)(-1, 2)(2, \infty)$
- B. $(-\infty, -2)(-2, 2)(2, \infty)$
- C. $(-\infty, -2)(2, \infty)$
- D. $(-\infty, -2)(-2, -1)(-1, 2)(2, \infty)$

4. Write the quadratic function in standard form. $f(x) = x^2 - 6x + 5$

- A. $f(x) = (x-3)^2 - 4$
- B. $f(x) = (x-4)^2 - 2$
- C. $f(x) = (x+3)^2 - 1$
- D. $f(x) = (x+\frac{3}{2})^2 - \frac{1}{4}$

2. Multiply: $\frac{1}{x+y} \left(\frac{x}{y} + \frac{y}{x} \right)$

- A. $\frac{1}{y} + \frac{1}{x}$
- B. 1
- C. $\frac{x+y}{xy}$
- D. $\frac{x^2+y^2}{xy(x+y)}$

5. Given $f(x) = 2 + x^4$ and $g(x) = \sqrt{x-4}$. Find $(f \circ g)(5)$

- A. 3
- B. 2
- C. 1
- D. 0

3. Find all solutions of the equation. $\frac{x+2}{x-2} = \frac{3x}{3x-6}$

- A. $\{-2, 2\}$
- B. $\{\frac{4}{3}, 3\}$
- C. $\{-\frac{4}{3}, 2\}$
- D. No solution

8. Solve: $\log(3x+7) = 2$

- A. $x = 93$
- B. $x = 21$
- C. $x = 31$
- D. $x = 19$

9. Solve: $\log x + \log(x-3) = 1$

- A. $x = -2$
- B. $x = 5$
- C. $x = -5$
- D. $x = 2$

10. Solve: $x^2 2^x - 2^x = 0$

- A. $x = -2, 2$
- B. $x = \ln 2, 1/2$
- C. $x = -1, 1$
- D. $x = \ln 2, 1$

6. Evaluate the expression.
 $\log_5 625 - \log_5 125$

- A. 1
- B. 2
- C. 3
- D. -3

7. Evaluate the expression.
 $\log_{12} 3 + \log_{12} 48$

- A. 1
- B. 2
- C. 3
- D. 4

13. Simplify $\frac{\sec(x) - \csc(x)}{\cot(x) + \tan(x)}$

- A. $\sin(x)$
- B. $\cos(x)$
- C. $\sec(x)$
- D. $\sin(x) - \cos(x)$

14. Simplify $\frac{\tan(x)}{\csc(x)} + \frac{\sin(x)}{\tan(x)}$.

- A. $\cos(x)$
- B. $\csc^2(x)$
- C. $\sec(x)$
- D. $\sec^2(x)$

15. Given $\cot(x)$ is undefined and $\cos(x) > 0$, find $\csc(x)$.

- A. 0
- B. 1
- C. -1
- D. Undefined

11. Solve: $e^{2x} - 3e^x + 2 = 0$

- A. $x = 1, 2$
- B. $x = 0, \ln 3$
- C. $x = 0, \ln 2$
- D. $x = 0, \ln 5$

16. If $\sin x = \frac{\sqrt{3}}{2}$ for x in quadrant I,

find $\tan x + \sec x$.

- A. $\sqrt{3} - 3$
- B. $\sqrt{3} + 1$
- C. $\sqrt{3} + 2$
- D. $\sqrt{2} + 3$

12. Simplify $\frac{\cos(x)\sec(x)}{\cot(x)}$

- A. $\cot(x)$
- B. $\sin(x)$
- C. $\cos(x)$
- D. $\tan(x)$

17. Evaluate: $\sin\left[\arccos\left[-\frac{2}{7}\right]\right]$.

- A. $\frac{\sqrt{53}}{7}$
- B. $-\frac{\sqrt{53}}{7}$
- C. $\frac{3\sqrt{5}}{7}$
- D. $-\frac{3\sqrt{5}}{7}$

19. Find all solutions in the interval $[0, 2\pi)$ of $\cos^2(x) - \cos(2x) = 0$.

- A. $0, \frac{\pi}{2}$
- B. ± 1
- C. $0, \pi$
- D. None of these

18. Evaluate: $\sin\left[\arctan\left[\frac{x}{5}\right]\right]$.

A. $\frac{x}{x+5}$

B. $\frac{x}{\sqrt{x^2+25}}$

C. $\frac{5}{\sqrt{x^2+25}}$

D. $\frac{\sqrt{25-x^2}}{5}$

20. Solve the equation in the interval $[0, 2\pi)$. $2\sin x - \sqrt{2} = 0$.

A. $\frac{\pi}{3}, \frac{2\pi}{3}$

B. $\frac{\pi}{2}, \frac{3\pi}{2}$

C. $\frac{\pi}{4}, -\frac{\pi}{4}$

D. $\frac{\pi}{4}, \frac{3\pi}{4}$