

1) $\cos\left(\frac{\pi}{6}\right) =$

- ☐ A $\sqrt{3}$ ☒ B $\frac{\sqrt{3}}{2}$ ☐ C $\frac{1}{\sqrt{3}}$ ☐ D $\frac{2}{\sqrt{3}}$

2) Find the domain of the function $f(x) = \frac{x+5}{\sqrt{2-x^2}}$.

- ☐ A $(-\infty, -\sqrt{2}] \cup [\sqrt{2}, \infty)$ ☐ B $(-\infty, -\sqrt{2}) \cup (\sqrt{2}, \infty)$
☐ C $[-\sqrt{2}, \sqrt{2}]$ ☒ D $(-\sqrt{2}, \sqrt{2})$

3) The solution of the inequality $5x + 3 > 3x + 5$ is

- ☐ A $[4, \infty)$ ☒ B $(1, \infty)$ ☐ C $[1, \infty)$ ☐ D $(4, \infty)$

4) If $f(x) = x^2 - 3x - 10$, $g(x) = x - 5$, and $x \neq 5$, then $\left(\frac{f}{g}\right)(x) =$

- ☒ A $x + 2$ ☐ B $2 - x$ ☐ C $x - 2$ ☐ D $-x - 2$

5) The solution of the inequality $-2 \leq 3x - 5 < 7$ is

- ☐ A $(1, 4)$ ☐ B $[1, 4]$ ☒ C $[1, 4)$ ☐ D $(1, 4]$

6) If $\cos(x) = \frac{3}{4}$, and $0 < x < \frac{\pi}{2}$, then $\csc(x) =$

- ☐ A $\frac{\sqrt{7}}{3}$ ☐ B $\frac{3}{\sqrt{7}}$ ☐ C $\frac{\sqrt{7}}{4}$ ☒ D $\frac{4}{\sqrt{7}}$

7) If $f(x) = \sqrt{x}$, and $g(x) = \tan x^2$, then $(g \circ f)(x) =$

- ☒ A $\tan x$ ☐ B $\sqrt{\tan x}$ ☐ C $\tan \sqrt{x}$ ☐ D $\sqrt{\tan x^2}$

8) If $f(x) = x^3 + x^2 + 9$, and $g(x) = 2x^2 - 1$, then $(f - g)(x) =$

- ☐ A $x^3 - x^2 + 8$ ☒ B $x^3 - x^2 + 10$ ☐ C $x^3 + 3x^2 + 8$ ☐ D $x^3 + 3x^2 + 10$

9) The function $f(x) = x^5 + 2x^3$ is

- ☐ A Even ☒ B Odd ☐ C Even and odd ☐ D Neither even nor odd

10) Find the range of the function $f(x) = \sqrt{x - 3}$.

- ☐ A $(-\infty, 0]$ ☒ B $[0, \infty)$ ☐ C $\mathbf{R} = (-\infty, \infty)$ ☐ D $[3, \infty)$

11) $\frac{5\pi}{6}$ rad =

- ☐ A 120° ☒ B 150° ☐ C 240° ☐ D 300°

12)	$150^\circ =$	☐ $\frac{4\pi}{3}$ rad.	☐ $\frac{5\pi}{3}$ rad.	☒ $\frac{5\pi}{6}$ rad.	☐ $\frac{2\pi}{3}$ rad.
13)	The solution of the inequality $ x - 5 \leq 2$ is	☐ $(3, 7)$	☒ $[3, 7]$	☐ $(-\infty, 3] \cup [7, \infty)$	☐ $(-\infty, 3) \cup (7, \infty)$
14)	The solution of the inequality $ x - 5 \geq 2$ is	☐ $(3, 7)$	☐ $[3, 7]$	☒ $(-\infty, 3] \cup [7, \infty)$	☐ $(-\infty, 3) \cup (7, \infty)$
15)	$\cot^2 x =$	☐ $1 - \csc^2 x$	☒ $\csc^2 x - 1$	☐ $-\csc^2 x - 1$	☐ $1 + \csc^2 x$
16)	If $f(x) = x - 2$, and $g(x) = x - 5$, then $(fg)(x) =$	☒ $x^2 - 7x + 10$	☐ $x^2 + 7x + 10$	☐ $x^2 - 3x - 10$	☐ $x^2 + 3x - 10$
17)	If $f(x) = \sqrt{x - 2}$, and $g(x) = \sqrt{x - 5}$, then D_{f+g} is	☐ $[2, \infty)$	☐ $[-5, \infty)$	☐ $[2, \infty)$	☒ $[5, \infty)$
18)	The distance between the points $(-3, 1)$ and $(3, -1)$ is	☐ $2\sqrt{2}$	☐ $\sqrt{6}$	☐ 6	☒ $2\sqrt{10}$
19)	The solution of the inequality $x^2 + x - 2 \geq 0$ is	☐ $(-\infty, -1) \cup (2, \infty)$	☐ $(-\infty, -1] \cup [2, \infty)$	☐ $(-\infty, -2) \cup (1, \infty)$	☒ $(-\infty, -2] \cup [1, \infty)$
20)	Find the equation of the line through the point $(-1, 3)$ with slope -2 .	☐ $y = -2x - 5$	☐ $y = -2x + 5$	☐ $y = -2x - 1$	☒ $y = -2x + 1$
21)	$(0, 5) \setminus (-3, 2] =$	☐ $(-3, 0]$	☐ $(-3, 0)$	☒ $(2, 5)$	☐ $[2, 5)$
22)	The equation of the line passes through the points $(-1, 3)$ and $(1, 7)$ is	☐ $y = 2x - 5$	☒ $y = 2x + 5$	☐ $y = 2x - 1$	☐ $y = 2x + 1$
23)	The slope the line perpendicular to the line $7y + 5x - 1 = 0$ is	☐ $-\frac{5}{7}$	☒ $\frac{7}{5}$	☐ $-\frac{7}{5}$	☐ $\frac{5}{7}$
24)	If $ x + 3 = 5$, then $x =$	☒ -8 or 2	☐ -8 or -2	☐ -2 or 8	☐ 2 or 8
25)	The function $f(x) = 5^x$ is	☐ Power	☒ Exponential	☐ Logarithmic	☐ Trigonometric

26) Find the domain of the function $f(x) = \frac{x+9}{x^2+7x+10}$.

- ☐ A $\mathbf{R} \setminus \{-2, 5\}$ ☒ B $\mathbf{R} \setminus \{-5, -2\}$ ☐ C $\mathbf{R} \setminus \{-5, 2\}$ ☐ D $\mathbf{R} \setminus \{2, 5\}$

27) Find the equation of the line with slope 5 and y-intercept 2 is.

- ☐ A $y = -5x + 2$ ☐ B $y = -5x - 2$ ☒ C $y = 5x + 2$ ☐ D $y = 5x - 2$

28) $\frac{1}{\tan x} =$

- ☒ A $\cot x$ ☐ B $\sin x$ ☐ C $\sec x$ ☐ D $\csc x$

29) Find the domain of the function $f(x) = \sqrt[5]{2-x}$.

- ☐ A $(-\infty, 2]$ ☒ B $\mathbf{R} = (-\infty, \infty)$ ☐ C $[2, \infty)$ ☐ D $[-2, \infty)$

30) If the graph of the function $f(x) = 7^x$ is shifted a distance 5 units to the upward, then the new graph represented the graph of the function is

- ☐ A $7^{(x+5)}$ ☐ B $7^{(x-5)}$ ☒ C $7^x + 5$ ☐ D $7^x - 5$