

Precalculus Review

Solve each of the following.

1) $4(x + 3) - 3 = 2(4 - 3x) - 4$

2) $\frac{1}{x-2} = 3$

3) $15 + x - 2x^2 = 0$

4) $(x + 4)^2 = 18$

5) $x^2 - 12x + 30 = 0$

6) $x^2 + 6x - 3 = 0$

7) $\sqrt{x+4} = 3$

8) $\sqrt{3x-2} = 4 - x$

9) $\sqrt{2x+3} + \sqrt{x-2} = 2$

10) $(x - 1)^{2/3} - 25 = 0$

11) $|x-5| = 10$

12) $x^2 - 2x \geq 3$

Find the domain.

13) $f(x) = \sqrt{25 - x^2}$

14) $\frac{3}{x^2 - x - 30}$

15) $f(x) = 6 - 5x^2$

a) $f(2) =$

b) $f(x + 3) =$

c) $\frac{f(x+t) - f(x)}{t} =$

16) $g(x) = \begin{cases} x^2 + 2 & x < 0 \\ |x - 2| & x \geq 0 \end{cases}$

Find $g(-4) =$

17) $f(x) = 3 - 2x, g(x) = \sqrt{x}$

a) $(f - g)(4) =$

b) $g \circ f(-2) =$

c) $f^{-1}(x) =$

18) $h(x) = \frac{1}{2}x + 5, g(x) = 3x + 6$

a) $(h + g)(x) =$

b) $g \circ f(x) =$

19) Sketch the graph.

$f(x) = 3\sqrt{x-2} + 4$

$g(x) = \frac{1}{4}(x+3)^2 - 4$

$h(x) = \begin{cases} 2x & x \leq 0 \\ x^2 + 1 & x > 0 \end{cases}$

20. Find the exact values.

a) $\sin 30^\circ =$

b) $\cos 90^\circ =$

c) $\tan 60^\circ =$

d) $\csc 45^\circ =$

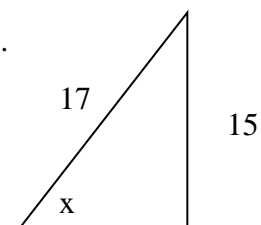
e) $\cot 315^\circ =$

f) $\sin 150^\circ =$

g) $\tan 390^\circ =$

21. Find the value of $\csc 47^\circ =$

22. Solve for x.



23. A tree casts a shadow of 26m when the angle of elevation of the sun is 23° . How tall is the tree?

24. Convert 303° to radians

25. Convert to degrees

a) $\frac{5\pi}{7} =$

b) 1.75 rads =

26. Find the reference angles.

a) $252^\circ =$

b) $640^\circ =$

c) $-217^\circ =$

d) 4 rads =

27. Find the $\cot \theta$ if (5, 12) is a point on the terminal side of θ .

28. Find all six trig functions if $\tan \theta = -12/5$ and $\sin \theta > 0$

29. On a ferris wheel, you travel through a central angle of 3000° . If the radius is 57 ft, how many feet have you travelled?

30. Find the values of :

a) $\arcsin -\frac{1}{2} =$

b) $\sin(\arccos -\frac{3}{5}) =$

c) $\tan(\sin^{-1} -\frac{\sqrt{3}}{2}) =$

d) $\cos^{-1}(\cos \frac{5\pi}{3}) =$

31. Sketch the following graphs:

a) $y = 2\sin(3x)$

b) $y = -4\cos\left(2x - \frac{\pi}{2}\right)$

c) $y = \tan x$

d) $y = \frac{1}{2}\sin(4x - 2\pi) + 1$