King Abdul Aziz University	Faculty of Sciences
Mathematics Department	Math 110
Workshop 4	Sections 2.3+2.4
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1) If $f(x)=x^2$, and $g(x)=\sqrt{4-x}$, then $(f+g)(x)=$

[A] $x^2-\sqrt{4-x}$ [B] $x^2+\sqrt{4-x}$ [C] $\sqrt{4-x^2}$ [D] $4-x$

2) If $f(x)=x^2$, and $g(x)=\sqrt{4-x}$, then $D_{f+g}=$

[A] $\mathbb{R}=(-\infty,\infty)$ [B] $(-\infty,4)$ [C] $(-\infty,4]$ [D] $[4,\infty)$

3) If $f(x)=x^2$, and $g(x)=\sqrt{4-x}$, then $(f-g)(x)=$

[A] $x^2-\sqrt{4-x}$ [B] $x^2+\sqrt{4-x}$ [C] $\sqrt{4-x^2}$ [D] $x^2\sqrt{4-x}$

4) If $f(x)=x^2$, and $g(x)=\sqrt{4-x}$, then $D_{f-g}=$

[A] $(-\infty,4]$ [B] $(-\infty,4)$ [C] $\mathbb{R}=(-\infty,\infty)$ [D] $[4,\infty)$

5) If $f(x)=x^2$, and $g(x)=\sqrt{4-x}$, then $(fg)(x)=$

[A] $x^2-\sqrt{4-x}$ [B] $x^2+\sqrt{4-x}$ [C] $\sqrt{4-x^2}$ [D] $x^2\sqrt{4-x}$

6) If $f(x)=x^2$, and $g(x)=\sqrt{4-x}$, then $D_{fg}=$

[A] $(-\infty,4]$ [B] $(-\infty,4)$ [C] $\mathbb{R}=(-\infty,\infty)$ [D] $[4,\infty)$

7) If $f(x)=x^2$, and $g(x)=\sqrt{4-x}$, then $(f\circ g)(x)=$

[A] $x^2-\sqrt{4-x}$ [B] $x^2\sqrt{4-x}$ [C] $\sqrt{4-x^2}$ [D] $4-x$

8) If $f(x)=x^2$, and $g(x)=\sqrt{4-x}$, then $D_{f\circ g}=$

[A] $(-\infty,4]$ [B] $(-\infty,4)$ [C] $(-\infty,-2]\cup[2,\infty)$ [D] $[-2,2]$

9) If $f(x)=x^2$, and $g(x)=\sqrt{4-x}$, then $(g\circ f)(x)=$

[A] $x^2-\sqrt{4-x}$ [B] $x^2+\sqrt{4-x}$ [C] $\sqrt{4-x^2}$ [D] $4-x$

10) f $f(x)=x^2$, and $g(x)=\sqrt{4-x}$, then $D_{g\circ f}=$

[A] $(-\infty,4]$ [B] $(-\infty,4)$ [C] $(-\infty,-2]\cup[2,\infty)$ [D] $[-2,2]$

11) If $f(x)=x^2$, then $(f\circ f)(x)=$

[A] x^3 [B] x^4 [C] x^2 [D] $\sqrt[4]{x}$

12) f $f(x)=x^2$, then $D_{f\circ f}=$

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

13) If $f(x)=x^2$, and $g(x)=\sqrt{4-x}$, then $(\frac{f}{g})(x)=$

[A] x^2 [B] $\frac{\sqrt{4-x}}{x^2}$ [C] $\sqrt{4-x^2}$ [D] $\frac{x^2}{\sqrt{4-x}}$

14) If $f(x)=x^2$, and $g(x)=\sqrt{4-x}$, then $D_{\frac{f}{g}}=$

[A] $(-\infty,4]$ [B] $(-\infty,4)$ [C] $\mathbb{R}=(-\infty,\infty)$ [D] $(-\infty,0)\cup(0,4]$

15) If $f(x)=x^2$, and $g(x)=\sqrt{4-x}$, then $(\frac{g}{f})(x)=$

[A] x^2 [B] $\frac{\sqrt{4-x}}{x^2}$ [C] $\sqrt{4-x^2}$ [D] $\frac{x^2}{\sqrt{4-x}}$

16) If $f(x)=x^2$, and $g(x)=\sqrt{4-x}$, then $D_{\frac{g}{f}}=$

[A] $(-\infty,4]$ [B] $(-\infty,4)$ [C] $\mathbb{R}=(-\infty,\infty)$ [D] $(-\infty,0)\cup(0,4]$

17) If $f(x)=9-x^2$, and $g(x)=10$, then $(f+g)(x)=$

[A] $1-x^2$ [B] $19-x^2$ [C] $1+x^2$ [D] $90-10x^2$

18) If $f(x)=9-x^2$, and $g(x)=10$, then $(f-g)(x)=$

[A] $1-x^2$ [B] $19-x^2$ [C] $1+x^2$ [D] $-x^2-1$

19) If $f(x)=9-x^2$, and $g(x)=10$, then $(g-f)(x)=$

[A] $1-x^2$ [B] $19-x^2$ [C] $1+x^2$ [D] $-x^2-1$

20) If $f(x)=9-x^2$, and $g(x)=10$, then $(fg)(x)=$

[A] $1-x^2$ [B] $19-x^2$ [C] $1+x^2$ [D] $90-10x^2$

21) If $f(x)=9-x^2$, and $g(x)=10$, then $(f\circ g)(x)=$

[A] $1-x^2$ [B] $9-(9-x^2)^2$ [C] 10 [D] -99

22) If $f(x)=9-x^2$, and $g(x)=10$, then $(g\circ f)(x)=$

[A] $1-x^2$ [B] $9-(9-x^2)^2$ [C] 10 [D] -99

23) If $f(x)=9-x^2$, and $g(x)=10$, then $(f\circ f)(x)=$

[A] $1-x^2$ [B] $9-(9-x^2)^2$ [C] 10 [D] -99

24) If $f(x)=9-x^2$, and $g(x)=10$, then $(g\circ g)(x)=$

[A] $1-x^2$ [B] $9-(9-x^2)^2$ [C] 10 [D] -99

25) If $f(x)=9-x^2$, $g(x)=\sin x$ and $h(x)=3x+2$, then $(f\circ g\circ h)(x)=$

[A] $9-\sin^2(3x)$ [B] $9-\sin(3x+2)$

[C] $9-\sin^2(3x+2)$ [D] $\sin^2(3x+2)$

26) If $f(x)=\sqrt{25+x^2}$, and $g(x)=x^3$, then $(f+g)(x)=$

[A] $x^3\sqrt{25+x^2}$ [B] $\sqrt{25+x^2}+x^3$ [C] $\sqrt{25+x^2}-x^3$ [D] $\frac{\sqrt{25+x^2}}{x^3}$

27) If $f(x)=\sqrt{25+x^2}$, and $g(x)=x^3$, then $(f-g)(x)=$

[A] $x^3\sqrt{25+x^2}$ [B] $\sqrt{25+x^2}+x^3$ [C] $\sqrt{25+x^2}-x^3$ [D] $\frac{\sqrt{25+x^2}}{x^3}$

28) If $f(x)=\sqrt{25+x^2}$, and $g(x)=x^3$, then $(fg)(x)=$

[A] $x^3\sqrt{25+x^2}$ [B] $\sqrt{25+x^2}+x^3$ [C] $\sqrt{25+x^2}-x^3$ [D] $\frac{\sqrt{25+x^2}}{x^3}$

29) If $f(x)=\sqrt{25+x^2}$, and $g(x)=x^3$, then $(\frac{f}{g})(x)=$

[A] $\sqrt{\frac{25+x^2}{x^3}}$ [B] $\frac{x^3}{\sqrt{25+x^2}}$ [C] $\frac{\sqrt{26}}{x}$ [D] $\frac{\sqrt{25+x^2}}{x^3}$

30) If $f(x)=\sqrt{25+x^2}$, and $g(x)=x^3$, then $(f\circ g)(x)=$

[A] $\sqrt{25+x^6}$ [B] $\sqrt{25+x^5}$ [C] $\sqrt{(25+x^2)^3}$ [D] $\sqrt[3]{(25+x^2)^2}$

31) If $f(x)=\sqrt{25+x^2}$, and $g(x)=x^3$, then $(g\circ f)(x)=$

[A] $\sqrt{25+x^6}$ [B] $\sqrt{25+x^5}$ [C] $\sqrt{(25+x^2)^3}$ [D] $\sqrt[3]{(25+x^2)^2}$

32) If $f(x)=\sqrt{x}$, and $g(x)=x-2$, then $(f\circ g)(x)=$

[A] $\sqrt{x}-2$ [B] $\sqrt{x-2}$ [C] $(x-2)\sqrt{x}$ [D] $x-4$

33) If $f(x)=\sqrt{x}$, and $g(x)=x-2$, then $(g\circ f)(x)=$

[A] $\sqrt{x}-2$ [B] $\sqrt{x-2}$ [C] $(x-2)\sqrt{x}$ [D] $x-4$

34) If $f(x)=\sqrt{x}$, and $g(x)=x-2$, then $(g\circ g)(x)=$

[A] $\sqrt{x}-2$ [B] $\sqrt{x-2}$ [C] $(x-2)\sqrt{x}$ [D] $x-4$

35) If $f(x)=\sqrt{x}$, and $g(x)=x-2$, then $(fg)(x)=$

[A] $\sqrt{x}-2$ [B] $\sqrt{x-2}$ [C] $(x-2)\sqrt{x}$ [D] $x-4$

36) If $f(x)=\sin 5x$, and $g(x)=x^2+3$, then $(f\circ g)(x)=$

[A] $\sin 5x^2+3$ [B] $\sin^2 5x+3$ [C] $(x^2+3)\sin 5x$ [D] $\sin 5(x^2+3)$

37) If $f(x)=\sin 5x$, and $g(x)=x^2+3$, then $(g\circ f)(x)=$

[A] $\sin 5x^2+3$ [B] $\sin^2 5x+3$ [C] $(x^2+3)\sin 5x$ [D] $\sin 5(x^2+3)$

38) If $f(x)=\sin 5x$, and $g(x)=x^2+3$, then $(fg)(x)=$

[A] $\sin 5x^2+3$ [B] $\sin^2 5x+3$ [C] $(x^2+3)\sin 5x$ [D] $\sin 5(x^2+3)$

39) If $f(x)=\sqrt{x}$, and $g(x)=\cos x$, then $(g\circ f)(x)=$

[A] $\cos\sqrt{x}$ [B] $\sqrt{\cos x}$ [C] $\sqrt{x}\cos x$ [D] $\cos x$

40) If $f(x)=x+\frac{1}{x}$, and $g(x)=1-x^2$, then $(f\circ g)(x)=$

[A] $1+(x+\frac{1}{x})^2$ [B] $(1-x^2)+\frac{1}{1-x^2}$ [C] $1-(x+\frac{1}{x})^2$ [D] $(x+\frac{1}{x})(1-x^2)$

41) If $f(x)=x+\frac{1}{x}$, and $g(x)=1-x^2$, then $(g\circ f)(x)=$

[A] $1+(x+\frac{1}{x})^2$ [B] $(1-x^2)+\frac{1}{1-x^2}$ [C] $1-(x+\frac{1}{x})^2$ [D] $(x+\frac{1}{x})(1-x^2)$

42) If $f(x)=x+\frac{1}{x}$, and $g(x)=1-x^2$, then $(fg)(x)=$

[A] $1+(x+\frac{1}{x})^2$ [B] $(1-x^2)+\frac{1}{1-x^2}$ [C] $1-(x+\frac{1}{x})^2$ [D] $(x+\frac{1}{x})(1-x^2)$

43) If the graph of the function $f(x)=x^2$ is shifted a distance 2 units upward, then the new graph represented the graph of the function is

[A] x^2+4x+4 [B] x^2-4x+4 [C] x^2+2 [D] x^2-2

44) If the graph of the function $f(x)=x^2$ is shifted a distance 2 units downward, then the new graph represented the graph of the function is

[A] x^2+4x+4 [B] x^2-4x+4 [C] x^2+2 [D] x^2-2

45) If the graph of the function $f(x)=x^2$ is shifted a distance 2 units to the right, then the new graph represented the graph of the function is

[A] x^2+4x+4 [B] x^2-4x+4 [C] x^2+2 [D] x^2-2

46) If the graph of the function $f(x)=x^2$ is shifted a distance 2 units to the left, then the new graph represented the graph of the function is

[A] x^2+4x+4 [B] x^2-4x+4 [C] x^2+2 [D] x^2-2

47) If the graph of the function $f(x)=\cos x$ is stretch vertically by a factor of 2, then the new graph represented the graph of the function is

[A] $\cos\frac{x}{2}$ [B] $\cos 2x$ [C] $2\cos x$ [D] $\frac{1}{2}\cos x$

48) If the graph of the function $f(x)=\cos x$ is compress vertically by a factor of 2, then the new graph represented the graph of the function is

[A] $\cos\frac{x}{2}$ [B] $\cos 2x$ [C] $2\cos x$ [D] $\frac{1}{2}\cos x$

49) If the graph of the function $f(x)=\cos x$ is compress horizontally by a factor of 2, then the new graph represented the graph of the function is

[A] $\cos\frac{x}{2}$ [B] $\cos 2x$ [C] $2\cos x$ [D] $\frac{1}{2}\cos x$

50) If the graph of the function $f(x)=\cos x$ is stretch horizontally by a factor of 2, then the new graph represented the graph of the function is

[A] $\cos\frac{x}{2}$ [B] $\cos 2x$ [C] $2\cos x$ [D] $\frac{1}{2}\cos x$

51) The graph of the function $f(x)=\sqrt{x}$ is reflected about the $x-$axis if

[A] $-\sqrt{x}$ [B] $\sqrt{-x}$ [C] x [D] $-x$

52) The graph of the function $f(x)=\sqrt{x}$ is reflected about the $y-$axis if

[A] $-\sqrt{x}$ [B] $\sqrt{-x}$ [C] x [D] $-x$

53) If the graph of the function $f(x)=e^x$ is shifted a distance 2 units upward, then the new graph represented the graph of the function

[A] e^{x+2} [B] e^x+2 [C] e^{x-2} [D] e^x-2

54) If the graph of the function $f(x)=e^x$ is shifted a distance 2 units downward, then the new graph represented the graph of the function

[A] e^{x+2} [B] e^x+2 [C] e^{x-2} [D] e^x-2

55) If the graph of the function $f(x)=e^x$ is shifted a distance 2 units to the right, then the new graph represented the graph of the function

[A] e^{x+2} [B] e^x+2 [C] e^{x-2} [D] e^x-2

56) If the graph of the function $f(x)=e^x$ is shifted a distance 2 units to the left, then the new graph represented the graph of the function

[A] e^{x+2} [B] e^x+2 [C] e^{x-2} [D] e^x-2

57) $\frac{2\pi}{3}$ rad $=$

[A] 120^0 [B] 150^0 [C] 270^0 [D] 210^0

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

[A] 120^0 [B] 150^0 [C] 270^0 [D] 210^0

59) $\frac{7\pi}{6}$ rad $=$

[A] 120^0 [B] 150^0 [C] 270^0 [D] 210^0

60) $\frac{3\pi}{2}$ rad $=$

[A] 120^0 [B] 150^0 [C] 270^0 [D] 210^0

61) $120^0 =$

[A] $\frac{2\pi}{3}\text{rad}$ [B] $\frac{3\pi}{2}\text{rad}$ [C] $\frac{5\pi}{6}\text{rad}$ [D] $\frac{5\pi}{12}\text{rad}$

62) $270^0 =$

[A] $\frac{5\pi}{6}\text{rad}$ [B] $\frac{3\pi}{2}\text{rad}$ [C] $\frac{2\pi}{3}\text{rad}$ [D] $\frac{5\pi}{12}\text{rad}$

63) $\frac{5\pi}{12}\text{ rad} =$

[A] 120^0 [B] 150^0 [C] 300^0 [D] 75^0

64) $\frac{5\pi}{6}\text{ rad} =$

[A] 120^0 [B] 150^0 [C] 300^0 [D] 75^0

65) $150^0 =$

[A] $\frac{5\pi}{6}\text{rad}$ [B] $\frac{3\pi}{2}\text{rad}$ [C] $\frac{2\pi}{3}\text{rad}$ [D] $\frac{5\pi}{12}\text{rad}$

66) $210^0 =$

[A] $\frac{5\pi}{6}\text{rad}$ [B] $\frac{3\pi}{2}\text{rad}$ [C] $\frac{7\pi}{6}\text{rad}$ [D] $\frac{5\pi}{12}\text{rad}$

67) $\frac{1}{\sec x} =$

[A] $\tan x$ [B] $\csc x$ [C] $\cos x$ [D] $\sin x$

68) $\frac{1}{\csc x} =$

[A] $\tan x$ [B] $\sec x$ [C] $\cos x$ [D] $\sin x$

69) $\frac{1}{\cot x} =$

[A] $\tan x$ [B] $\csc x$ [C] $\cos x$ [D] $\sin x$

70) $\frac{\sin x}{\cos x} =$

[A] $\tan x$ [B] $\cot x$ [C] $\sec x$ [D] $\csc x$

71) $\frac{\cos x}{\sin x} =$

[A] $\tan x$ [B] $\cot x$ [C] $\sec x$ [D] $\csc x\ \cot x$

72) If $\cos(x) = \frac{3}{5}$, and $0 < x < \frac{\pi}{2}$, then $\cot(x) =$

[A] $\frac{4}{3}$ [B] $\frac{5}{3}$ [C] $\frac{4}{5}$ [D] $\frac{3}{4}$

73) If $\cos(x)=\frac{3}{5}$, and $0<x<\frac{\pi}{2}$, then find $\tan(x)=$

[A] $\frac{4}{3}$ [B] $\frac{5}{3}$ [C] $\frac{4}{5}$ [D] $\frac{3}{4}$

74) If $\cos(x)=\frac{3}{5}$, and $0<x<\frac{\pi}{2}$, then $\sin(x)=$

[A] $\frac{4}{3}$ [B] $\frac{5}{3}$ [C] $\frac{4}{5}$ [D] $\frac{3}{4}$

75) If $\cos(x)=\frac{3}{5}$, and $0<x<\frac{\pi}{2}$, then $\csc(x)=$

[A] $\frac{4}{3}$ [B] $\frac{5}{4}$ [C] $\frac{4}{5}$ [D] $\frac{3}{4}$

76) $\sin\left(\frac{5\pi}{6}\right)=$

[A] $\frac{1}{2}$ [B] $-\frac{\sqrt{3}}{2}$ [C] $-\frac{1}{\sqrt{3}}$ [D] $-\sqrt{3}$

77) $\cos\left(\frac{5\pi}{6}\right)=$

[A] $\frac{1}{2}$ [B] $-\frac{\sqrt{3}}{2}$ [C] $-\frac{1}{\sqrt{3}}$ [D] $-\sqrt{3}$

78) $\tan\left(\frac{5\pi}{6}\right)=$

[A] $\frac{1}{2}$ [B] $-\frac{\sqrt{3}}{2}$ [C] $-\frac{1}{\sqrt{3}}$ [D] $-\sqrt{3}$

79) $\cot\left(\frac{5\pi}{6}\right)=$

[A] $\frac{1}{2}$ [B] $-\frac{\sqrt{3}}{2}$ [C] $-\frac{1}{\sqrt{3}}$ [D] $-\sqrt{3}$

80) If $\sin(x)=\frac{2}{3}$, and $0<x<\frac{\pi}{2}$, then $\sec(x)=$

[A] $\frac{\sqrt{5}}{2}$ [B] $\frac{3}{\sqrt{5}}$ [C] $\frac{3}{2}$ [D] $\frac{2}{\sqrt{5}}$

81) If $\sin(x)=\frac{2}{3}$, and $0<x<\frac{\pi}{2}$, then $\csc(x)=$

[A] $\frac{\sqrt{5}}{2}$ [B] $\frac{3}{\sqrt{5}}$ [C] $\frac{3}{2}$ [D] $\frac{2}{\sqrt{5}}$

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

[A] $\frac{\sqrt{7}}{4}$ [B] $\frac{3}{\sqrt{7}}$ [C] $\frac{4}{\sqrt{7}}$ [D] $\frac{\sqrt{7}}{3}$

83) If $\sin(x)=\frac{3}{4}$, and $0<x<\frac{\pi}{2}$, then $\cot(x)=$

[A] $\frac{\sqrt{7}}{4}$ [B] $\frac{3}{\sqrt{7}}$ [C] $\frac{4}{\sqrt{7}}$ [D] $\frac{\sqrt{7}}{3}$

84) If $\csc(x)=-\frac{5}{3}$, and $\frac{3\pi}{2}<x<2\pi$, then $\cos(x)=$

[A] $\frac{4}{5}$ [B] $-\frac{3}{4}$ [C] $\frac{5}{4}$ [D] $-\frac{4}{3}$

85) If $\csc(x)=-\frac{5}{3}$, and $\frac{3\pi}{2}<x<2\pi$, then $\sec(x)=$

[A] $\frac{4}{5}$ [B] $-\frac{3}{4}$ [C] $\frac{5}{4}$ [D] $-\frac{4}{3}$

86) If $\csc(x)=-\frac{5}{3}$, and $\frac{3\pi}{2}<x<2\pi$, then $\cot(x)=$

[A] $\frac{4}{5}$ [B] $-\frac{3}{4}$ [C] $\frac{5}{4}$ [D] $-\frac{4}{3}$

87) If $\csc(x)=-\frac{5}{3}$, and $\frac{3\pi}{2}<x<2\pi$, then $\tan(x)=$

[A] $\frac{4}{5}$ [B] $-\frac{3}{4}$ [C] $\frac{5}{4}$ [D] $-\frac{4}{3}$

88) f $f(x)=\sin x$, then $D_f=$

[A] $(-\infty,1]$ [B] $(-\infty,-1)$ [C] $\mathbb{R}=(-\infty,\infty)$ [D] $[-1,1]$

89) f $f(x)=\cos x$, then $D_f=$

[A] $(-\infty,1]$ [B] $(-\infty,-1)$ [C] $\mathbb{R}=(-\infty,\infty)$ [D] $[-1,1]$

90) f $f(x)=\sin x$, then $R_f=$

[A] $(-1,0]$ [B] $(0,1)$ [C] $\mathbb{R}=(-\infty,\infty)$ [D] $[-1,1]$

91) f $f(x)=\cos x$, then $R_f=$

[A] $(-1,0]$ [B] $(0,1)$ [C] $\mathbb{R}=(-\infty,\infty)$ [D] $[-1,1]$