Algebra 3 Review Worksheet Assignment # 7

(1) Find each of the following numbers please.

(a) $\sin(75^\circ)$

(b) $\cos(105^\circ)$

(c) $\sin\left(\frac{13\pi}{12}\right)$

(d) $\cos\left(\frac{11\pi}{12}\right)$

(e) $\sin(195^\circ)$

(f) $\cos(285^\circ)$

(g) $\sin\left(112\frac{1}{2}^\circ\right)$

(h) $\cos\left(157\frac{1}{2}^\circ\right)$

(i) $\sin\left(\frac{11\pi}{8}\right)$

(j) $\cos\left(-\frac{3\pi}{8}\right)$

(k) $2\sin\left(7\frac{1}{2}^\circ\right)\cos\left(7\frac{1}{2}^\circ\right)$

(l) $\cos^2\left(\frac{\pi}{24}\right) - \sin^2\left(\frac{\pi}{24}\right)$

(m) $\tan(75°)$

(n) $\cos(60°)$

(2) Simplify each of the following please.

(a) $\sin(180^\circ + x)$

(b) $\cos(90^\circ - x)$

(c) $\sin(270^\circ - x)$

(d) $\cos(180^\circ - x)$

(e) $\sin\left(\frac{\pi}{2} + x\right)$

(f) $\cos\left(\frac{3\pi}{2} + x\right)$

(3) $\text{Sin}(A) = -\frac{4}{5}$, $\pi < A < \frac{3\pi}{2}$, $\text{Sec}(B) = \frac{13}{5}$, $-\frac{\pi}{2} < B < 0$. Find each of the following numbers please.

(a) $\sin(A + B)$

(b) $\cos(A + B)$

(c) $\sin(A - B)$

(d) $\cos(A - B)$

(e) $\sin(2A)$

(f) $\cos(2A)$

(g) $\sin(2B)$

(h) $\cos(2B)$

(i) $\sin\left(\frac{A}{2}\right)$

(j) $\cos\left(\frac{A}{2}\right)$

(k) $\sin\left(\frac{B}{2}\right)$

(l) $\cos\left(\frac{B}{2}\right)$

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Answers

(1) **(a)** $\frac{\sqrt{6}+\sqrt{2}}{4}$ or $\frac{\sqrt{2+\sqrt{3}}}{2}$ **(b)** $\frac{\sqrt{2}-\sqrt{6}}{4}$ or $-\frac{\sqrt{2-\sqrt{3}}}{2}$

(c) $\frac{\sqrt{2}-\sqrt{6}}{4}$ or $-\frac{\sqrt{2-\sqrt{3}}}{2}$ **(d)** $\frac{-\sqrt{6}-\sqrt{2}}{4}$ or $-\frac{\sqrt{2+\sqrt{3}}}{2}$

(e) $\frac{\sqrt{2}-\sqrt{6}}{4}$ or $-\frac{\sqrt{2-\sqrt{3}}}{2}$ **(f)** $\frac{\sqrt{6}-\sqrt{2}}{4}$ or $\frac{\sqrt{2-\sqrt{3}}}{2}$

(g) $\frac{\sqrt{2+\sqrt{2}}}{2}$ **(h)** $-\frac{\sqrt{2+\sqrt{2}}}{2}$

(i) $-\frac{\sqrt{2+\sqrt{2}}}{2}$ **(j)** $\frac{\sqrt{2-\sqrt{2}}}{2}$

(k) $\frac{\sqrt{6}-\sqrt{2}}{4}$ or $\frac{\sqrt{2-\sqrt{3}}}{2}$ **(l)** $\frac{\sqrt{6}+\sqrt{2}}{4}$ or $\frac{\sqrt{2+\sqrt{3}}}{2}$

(m) $2+\sqrt{3}$ **(n)** $\frac{1}{2}$

(2) **(a)** $-\sin(x)$ **(b)** $\sin(x)$ **(c)** $-\cos(x)$

(d) $-\cos(x)$ **(e)** $\cos(x)$ **(f)** $\sin(x)$

(3) **(a)** $\frac{16}{65}$ **(b)** $-\frac{63}{65}$ **(c)** $-\frac{56}{65}$

(d) $\frac{33}{65}$ **(e)** $\frac{24}{25}$ **(f)** $-\frac{7}{25}$

(g) $-\frac{120}{169}$ **(h)** $-\frac{119}{169}$ **(i)** $\frac{2}{\sqrt{5}}$

(j) $-\frac{1}{\sqrt{5}}$ **(k)** $-\frac{2}{\sqrt{13}}$ **(l)** $\frac{3}{\sqrt{13}}$