

## ANSWER SHEET – Sum & Difference Identities

---

**Sum/Difference Sine –** 1.  $\frac{1}{2}$  2.  $\frac{-1-\sqrt{3}}{2}$  3.  $\frac{\sqrt{2}+\sqrt{6}}{4}$  4.  $\frac{\sqrt{6}+\sqrt{2}}{4}$   
5.  $\frac{\sqrt{2}-\sqrt{6}}{4}$  6.  $\frac{\sqrt{6}-\sqrt{2}}{4}$  7.  $\frac{33}{65}$  8.  $-\frac{63}{65}$

---

**Sum/Difference Cosine -** 1. 0 2.  $\frac{\sqrt{3}+1}{2}$  4.  $\frac{\sqrt{6}-\sqrt{2}}{4}$  5.  $\frac{\sqrt{2}-\sqrt{6}}{4}$   
6.  $\frac{-\sqrt{6}-\sqrt{2}}{4}$  7.  $\frac{-\sqrt{6}-\sqrt{2}}{4}$  8.  $-\frac{16}{65}$  9.  $-\frac{56}{65}$

---

**Sum/Difference Tangent -** 1.  $-2-\sqrt{3}$  2.  $1+\sqrt{3}$  3.  $-\frac{33}{56}$  4.  $\frac{63}{16}$   
5.  $\cos 55^\circ$  6.  $\sin 290^\circ$  7.  $\tan 239^\circ$

---

**Sum/Difference Mixed (Purple Book Page 486) -** 10. (a)  $\frac{\sqrt{6}-\sqrt{2}}{4}$  (b)  $\frac{\sqrt{6}+\sqrt{2}}{4}$  (c)  $2-\sqrt{3}$   
16. (a)  $\frac{-\sqrt{2}-\sqrt{6}}{4}$  (b)  $\frac{\sqrt{2}-\sqrt{6}}{4}$  (c)  $2+\sqrt{3}$  19.  $\cos 55^\circ$  20.  $\sin 190^\circ$  21.  $\sin 290^\circ$   
22.  $\cos 10^\circ$  23.  $\tan 239^\circ$  24.  $\tan 80^\circ$  27.  $\cos \frac{12\pi}{35}$  28.  $\sin \frac{29\pi}{90}$   
39.  $-\frac{3}{5}$  40.  $\frac{4}{5}$  41.  $\frac{44}{125}$  42.  $-\frac{117}{125}$  \*\*\* $\tan(u+v) = -\frac{4}{3}$  \*\*\* $\tan(u-v) = \frac{44}{117}$

---

### Simplifying and Verifying with Sum & Difference Identities -

1.  $-\sin \theta$  2.  $\tan \theta$  3. 0 4. 0 5.  $2 \tan \theta$  6.  $\sqrt{2} \sin \theta$  7.  $-\sqrt{2} \sin \theta$

---

**Solving Equations with Sum & Difference identities** - Answers are on the worksheet.

---

### More Sum & Difference Identities WS -

1.  $\frac{-\sqrt{6}+\sqrt{2}}{4}$  2.  $\frac{33}{65}$  3.  $\frac{16}{65}$  4.  $-\frac{3}{4}$  5.  $\frac{24\sqrt{3}+7}{50}$  6.  $\frac{-12+5\sqrt{3}}{26}$  7.  $-\cos x$

---

**Sum & Difference Identities Review WS** - Answers are on the worksheet.