

Practice Sum & Difference Identities

Find each exact value.

1. $\cos(x+y)$ if $\sin x = \frac{5}{13}$ and $\sin y = \frac{4}{5}$

2. $\sin(x-y)$ if $\cos x = \frac{8}{17}$ and $\cos y = \frac{3}{5}$

3. $\cos(x+y)$ if $\sin x = \frac{7}{25}$ and $\sec y = \frac{-5}{4}$

Simplify to a trig function of a single angle.

4. $\cos 120^\circ \cos 30^\circ - \sin 120^\circ \sin 30^\circ$

5. $\sin 45^\circ \cos 50^\circ + \sin 50^\circ \cos 45^\circ$

6. $\cos 150^\circ \cos 15^\circ + \sin 150^\circ \sin 15^\circ$

Angle Sum and Difference Identities: Apply the angle sum and difference formulas for trigonometric functions

- 1 The expression $\cos 4x \cos 3x + \sin 4x \sin 3x$ is equivalent to
 - 1) $\sin x$
 - 2) $\sin 7x$
 - 3) $\cos x$
 - 4) $\cos 7x$
- 2 The expression $\cos 40^\circ \cos 10^\circ + \sin 40^\circ \sin 10^\circ$ is equivalent to
 - 1) $\cos 30^\circ$
 - 2) $\cos 50^\circ$
 - 3) $\sin 30^\circ$
 - 4) $\sin 50^\circ$
- 3 $\cos 70^\circ \cos 40^\circ - \sin 70^\circ \sin 40^\circ$ is equivalent to
 - 1) $\cos 30^\circ$
 - 2) $\cos 70^\circ$
 - 3) $\cos 110^\circ$
 - 4) $\sin 70^\circ$
- 4 Which expression is equivalent to $\sin 22^\circ \cos 18^\circ + \cos 22^\circ \sin 18^\circ$?
 - 1) $\sin 4^\circ$
 - 2) $\cos 4^\circ$
 - 3) $\sin 40^\circ$
 - 4) $\cos 40^\circ$
- 5 The expression $\cos 80^\circ \cos 20^\circ - \sin 80^\circ \sin 20^\circ$ is equivalent to
 - 1) $\cos 60^\circ$
 - 2) $\cos 100^\circ$
 - 3) $\sin 100^\circ$
 - 4) $\sin 60^\circ$
- 6 $\sin 50^\circ \cos 30^\circ + \cos 50^\circ \sin 30^\circ$ is equivalent to
 - 1) $\cos 80^\circ$
 - 2) $\sin 20^\circ$
 - 3) $\cos 20^\circ$
 - 4) $\sin 80^\circ$
- 7 The expression $\cos 70^\circ \cos 10^\circ + \sin 70^\circ \sin 10^\circ$ is equivalent to
 - 1) $\cos 60^\circ$
 - 2) $\cos 80^\circ$
 - 3) $\sin 60^\circ$
 - 4) $\sin 80^\circ$
- 8 The expression $\cos 80^\circ \cos 70^\circ + \sin 80^\circ \sin 70^\circ$ is equivalent to
 - 1) $\cos 10^\circ$
 - 2) $\cos 150^\circ$
 - 3) $\sin 10^\circ$
 - 4) $\sin 150^\circ$
- 9 The expression $\sin 80^\circ \cos 70^\circ + \cos 80^\circ \sin 70^\circ$ is equivalent to
 - 1) $\sin 10^\circ$
 - 2) $\cos 10^\circ$
 - 3) $\sin 150^\circ$
 - 4) $\cos 150^\circ$
- 10 If $\sin x = \sin y = a$ and $\cos x = \cos y = b$, then $\cos(x-y)$ is
 - 1) $b^2 - a^2$
 - 2) $b^2 + a^2$
 - 3) $2b - 2a$
 - 4) $2b + 2a$