

Product-to-Sum and Sum-to-Product

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Use the product-to-sum identities to rewrite the expression as the sum or difference of two functions.

1) $\cos 49^\circ \cos 12^\circ$

A) $\frac{1}{2} \sin 37^\circ + \frac{1}{2} \sin 61^\circ$

B) $\frac{1}{2} \sin 61^\circ - \frac{1}{2} \sin 37^\circ$

C) $\frac{1}{2} \cos 37^\circ - \frac{1}{2} \cos 61^\circ$

D) $\frac{1}{2} \cos 37^\circ + \frac{1}{2} \cos 61^\circ$

1) _____

2) $\sin 32^\circ \cos 3^\circ$

A) $\frac{1}{2} \cos 35^\circ + \frac{1}{2} \cos 29^\circ$

B) $\frac{1}{2} \sin 35^\circ + \frac{1}{2} \sin 29^\circ$

C) $\frac{1}{2} \cos 29^\circ - \frac{1}{2} \cos 35^\circ$

D) $\frac{1}{2} \sin 29^\circ - \frac{1}{2} \sin 35^\circ$

2) _____

3) $\cos 4\theta \cos 7\theta$

A) $\cos^2 19\theta^2$

B) $\frac{1}{2} \cos 11\theta - \frac{1}{2} \cos 3\theta$

C) $\frac{1}{2} \cos 3\theta + \frac{1}{2} \cos 11\theta$

D) $\frac{1}{2} \cos 11\theta - \frac{1}{2} \sin 3\theta$

3) _____

4) $\sin 5\theta \sin 7\theta$

A) $-\frac{1}{2} \cos 2\theta - \frac{1}{2} \cos 12\theta$

B) $\frac{1}{2} \cos 2\theta - \frac{1}{2} \cos 12\theta$

C) $\frac{1}{2} \cos 12\theta - \frac{1}{2} \sin 2\theta$

D) $\sin^2 35\theta^2$

4) _____

Use sum-to-product identities to rewrite the expression as a product.

5) $\sin 43^\circ - \sin 27^\circ$

A) $2 \sin 35^\circ \cos 8^\circ$

B) $2 \cos 35^\circ \cos 8^\circ$

C) $-2 \sin 35^\circ \sin 8^\circ$

D) $2 \cos 35^\circ \sin 8^\circ$

5) _____

6) $\sin \frac{\pi}{13} - \sin \frac{\pi}{2}$

A) $2 \cos \frac{11\pi}{52} \cos \frac{15\pi}{52}$

B) $2 \sin \frac{15\pi}{52} \cos \frac{11\pi}{52}$

C) $-2 \cos \frac{15\pi}{52} \sin \frac{11\pi}{52}$

D) $-2 \sin \frac{11\pi}{52} \sin \frac{15\pi}{52}$

6) _____

7) $\cos 6x + \cos 4x$

A) $2 \sin 5x \sin x$

B) $2 \cos 5x \sin x$

C) $2 \cos 5x \cos x$

D) $2 \cos 5x$

7) _____

8) $\sin 10x + \sin 4x$

A) $2 \sin 7x \sin 3x$

B) $2 \sin 7x \cos 3x$

C) $2 \cos 7x \sin 3x$

D) $2 \sin 14x$

8) _____

Answer Key

Testname: SUM-TO-PRODUCT AND PRODUCT-TO-SUM

- 1) D
- 2) B
- 3) C
- 4) B
- 5) D
- 6) C
- 7) C
- 8) B