



COGNOME \_\_\_\_\_ NOME \_\_\_\_\_

Calcola il valore delle seguenti espressioni:

1.  $\text{sen} \frac{\pi}{2} + 2 \text{sen} \pi - 3 \text{sen} \frac{3}{2} \pi - 2 \text{sen} 0$  \_\_\_\_\_ / 1,5

2.  $\text{sen} 7\pi + \sqrt{2} \text{sen} \frac{\pi}{4} - \text{sen} \frac{3}{2} \pi + 4 \text{sen} \frac{\pi}{6} - 5 \text{sen} 3\pi$  \_\_\_\_\_ / 1,75

3.  $8 \cos \frac{\pi}{3} + 4 \text{sen} \frac{\pi}{6} - \sqrt{2} \text{sen} \frac{\pi}{4} + \sqrt{2} \cos \frac{\pi}{4}$  \_\_\_\_\_ / 1,5

4.  $\frac{\text{tg} \pi - \text{ctg} \frac{3}{2} \pi - 3 \text{sen} \left( -\frac{5}{2} \pi \right)}{\text{sen}^2 \left( -\frac{\pi}{2} \right) + \cos^2 \left( -\pi \right)}$  \_\_\_\_\_ / 1,75

5.  $\frac{a^2 \left( \text{sen} \frac{\pi}{2} + \cos \frac{3}{2} \pi \right) - a \left[ \text{sen} \left( -\frac{3}{2} \pi \right) + \cos \left( -2\pi \right) \right] - \left[ \text{sen} \frac{3}{2} \pi - \cos \frac{\pi}{2} \right]}{a \text{sen} \left( -\frac{5}{2} \pi \right) + \cos \left( -4\pi \right)}$  \_\_\_\_\_ / 3,25

6.  $5 \text{sen} \frac{3}{2} \pi - 2 \text{tg} \pi + \frac{4}{\sqrt{3}} \text{tg} \frac{\pi}{3} - 5 \text{ctg} \frac{\pi}{4}$  \_\_\_\_\_ / 1,5

7.  $\text{tg} \frac{\pi}{6} \left( \text{sen} \frac{\pi}{6} - \cos \frac{\pi}{3} \right) + \text{ctg} \frac{\pi}{3} \left( \cos 2\pi - \text{sen} \frac{\pi}{2} \right)$  \_\_\_\_\_ / 2

8.  $\frac{2 \text{tg} \frac{\pi}{4} - \text{tg} 2\pi + \text{ctg} \frac{\pi}{2}}{2 \cos \frac{\pi}{6} - \text{sen} \frac{\pi}{2}}$  \_\_\_\_\_ / 1,75

Verifica le seguenti identità nei loro domini, applicando le relazioni fondamentali:

9.  $\text{sen}^2 \alpha - 3 \cos^2 \alpha + 1 = 4 \text{sen}^2 \alpha - 2$  \_\_\_\_\_ / 1

10.  $\text{tg}^2 \alpha \cos^2 \alpha + \frac{\text{ctg}^2 \alpha}{\text{sen}^2 \alpha} = \frac{\text{sen}^6 \alpha - \text{sen}^2 \alpha + 1}{\text{sen}^4 \alpha}$  \_\_\_\_\_ / 2,5

11.  $(1 - \text{sen} \alpha)(1 + \text{sen} \alpha) - 2 (\text{sen}^6 \alpha + \cos^6 \alpha) = 7 \cos^2 \alpha - 6 \cos^4 \alpha - 2$  \_\_\_\_\_ / 2,5

12.  $\frac{\text{ctg} \alpha + 1}{\text{sen} \alpha - \cos \alpha} = - \frac{1 + \text{tg} \alpha}{\text{sen} \alpha (1 - \text{tg} \alpha)}$  \_\_\_\_\_ / 4

Determina le rimanenti funzioni goniometriche dell'arco  $\alpha$  sapendo che:

13.  $\text{sen} \alpha = \frac{1}{3}$        $0 < \alpha < \frac{\pi}{2}$  \_\_\_\_\_ / 2,5

14.  $\text{tg} \alpha = \frac{24}{7}$        $\pi < \alpha < \frac{3}{2} \pi$  \_\_\_\_\_ / 2,5

Totale punti 30. Sufficienza con punti 16.

**BUON LAVORO!!!**

