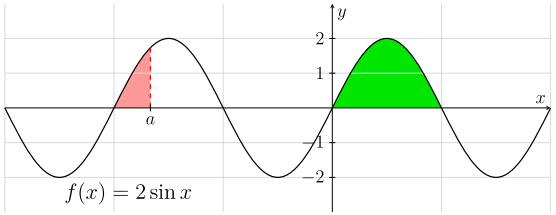
MATH 4 T

This test has been generated in the Math for Teacher application, a part of the Math for You education portal – `math4u.vsb.cz`.

Applications of definite integral

1. Find the missing real constant a so that the ratio of the green and the red area indicated in the picture is $4 : 1$.



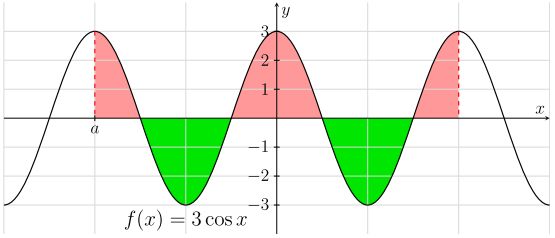
(a) $a = -2\pi$

(b) $a = -\pi$

(c) $a = -\frac{5}{4}\pi$

(d) $a = -\frac{5}{3}\pi$

2. Find the missing real constant a so that the green area and the red area indicated in the picture do equal.



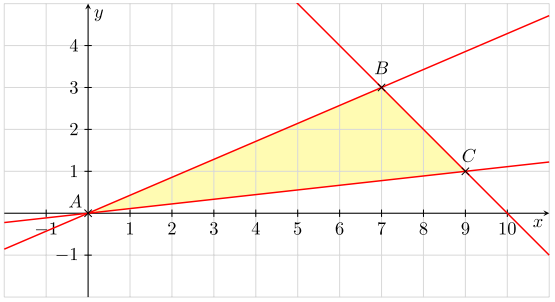
(a) $a = -\frac{\pi}{2}$

(b) $a = -\frac{3}{2}\pi$

(c) $a = -3\pi$

(d) $a = -2\pi$

3. Find the area of the yellow triangle ABC indicated in the picture. Read all the needed values from the picture.



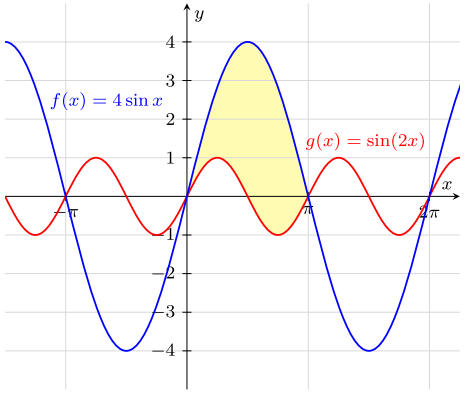
(a) 10

(b) 10.5

(c) 9.5

(d) 11

4. Which of the given expressions does not describe the area of the region highlighted in yellow? (See the picture.)



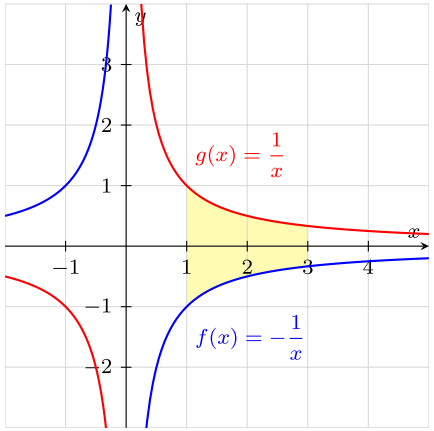
(a) $4 \cdot \int_0^{\pi} \sin x \, \mathrm{d}x$

(b) $\int_0^{\frac{\pi}{2}} 16 \cdot \frac{\sin x}{2} \, \mathrm{d}x$

(c) $4 \cdot \int_0^{\frac{\pi}{4}} 4 \sin x \, \mathrm{d}x$

(d) $8 \cdot \int_0^{\pi} \frac{\sin x}{2} \, \mathrm{d}x$

5. Which of the given expressions does not describe the area of the region highlighted in yellow? (See the picture.)



(a) $\int_1^3 \frac{1}{x} \, \mathrm{d}x - \int_1^3 -\frac{1}{x} \, \mathrm{d}x$

(b) $\int_1^4 \frac{2}{x} \, \mathrm{d}x - \int_3^4 \frac{2}{x} \, \mathrm{d}x$

(c) $\int_1^3 \frac{1}{x} \, \mathrm{d}x$

(d) $2 \int_1^3 \frac{1}{x} \, \mathrm{d}x$

Answers (Applications of definite integral): 1d, 2d, 3a, 4c, 5c,