Chapter 7 Practice Test– Calculus

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

The function v(t) is the velocity in m/sec of a particle moving along the x-axis. Determine when the particle is moving to the right, to the left, and stopped.

1) $v(t) = 9 \sin t$, $0 \le t \le 2\pi$ 1) D

A) Right: $0 \le t < \frac{\pi}{2}, \frac{3\pi}{2} < t \le 2\pi$

Left: $\frac{\pi}{2} < t < \frac{3\pi}{2}$

Stopped: $t = \frac{\pi}{2}, \frac{3\pi}{2}$

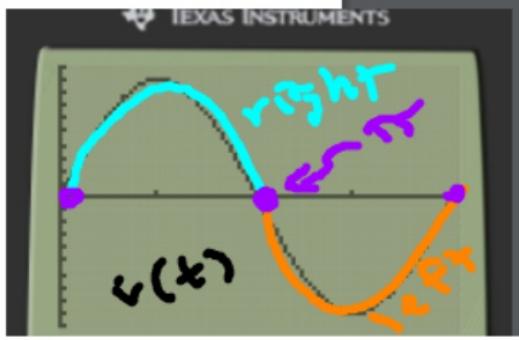
B) Right: $0 < t \le \pi$
Left: $\pi < t < 2\pi$
Stopped: $t = 0, 2\pi$

C) Right: $0 \le t < \frac{\pi}{2}, \pi \le t < \frac{3\pi}{2}$

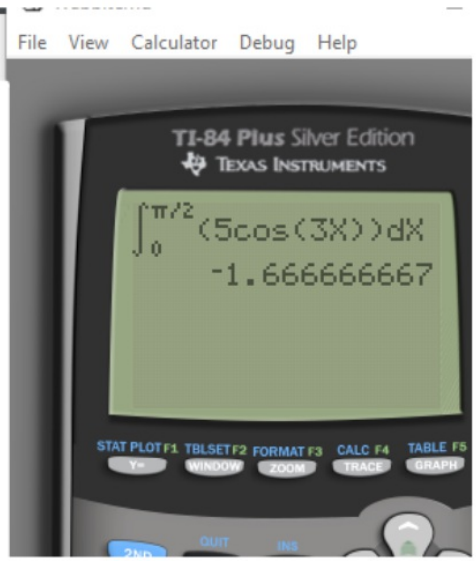
Left: $\frac{\pi}{2} < t < \pi, \frac{3\pi}{2} < t < 2\pi$

Stopped: $t = \frac{\pi}{2}, \frac{3\pi}{2}$

D) Right: $0 < t < \pi$
Left: $\pi < t < 2\pi$
Stopped: $t = 0, \pi, 2\pi$



(2) $\int_0^{\pi/2} 5\cos 3t \, dt$



A) $-\frac{5}{3}$ B) 0 C) $\frac{5}{3}$ D) −5

The function v(t) is the velocity in m/sec of a particle moving along the x-axis. Find the total distance traveled by the particle.

3) $v(t) = 3 \sin 4t,\ 0 \le t \le \pi$ 3) _____

A) 0 B) 3 C) 12 D) 6

absolute!

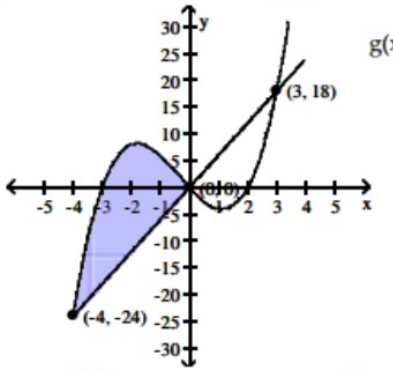
$\int_0^{\pi} (|3\sin(4X)|)dX$

6

Find the area of the shaded region.

4) $f(x) = x^3 + x^2 - 6x$

$g(x) = 6x$



4) _____

$$\int_{-4}^{0} [(x^3 + x^2 - 6x) - 6x]\,dx$$

A) $\frac{343}{12}$ B) $\frac{81}{12}$ C) $\frac{160}{3}$ D) $\frac{768}{12}$

$$= \int_{-4}^{0} (x^3 + x^2 - 12x)\,dx$$

1

TEXAS INSTRUMENTS

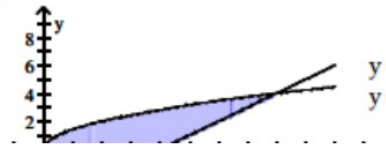
$\int_{-4}^{0} (X^3+X^2-12X)dX$

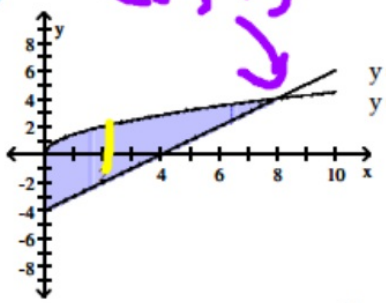
53.33333333

160/3

53.33333333

5)

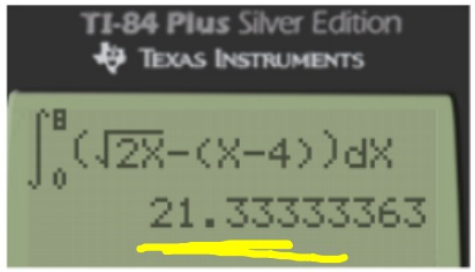


5) 

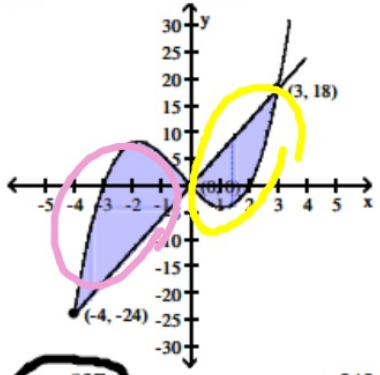
$\int_0^8 \left(\sqrt{2x} - (x-4)\right) dx$

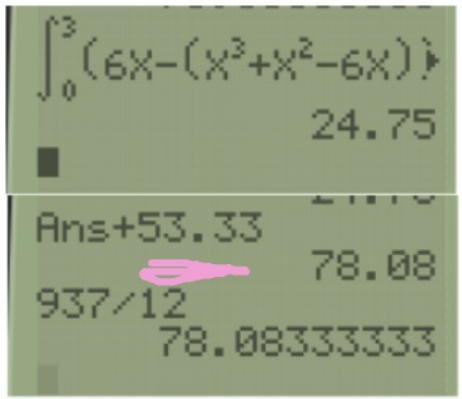
5) _____

A) 32 B) $\frac{32}{3}$ C) $\frac{64}{3}$ D) $\frac{128}{3}$



6) $f(x) = x^3 + x^2 - 6x$, $g(x) = 6x$





6) _____

A) $\frac{937}{12}$ B) $\frac{343}{12}$ C) $\frac{768}{12}$ D) $\frac{81}{12}$

$y^2 = 25 - x^2$

$x^2 + y^2 = 25$

8

$\pi \int_0^5 (\sqrt{25-x^2})^2 dx$

$\pi \int_0^5 (25-x^2)\,dx$

261.7993878

250/3

83.33333333

Ans*π

261.7993878

Find the area enclosed by the given curves.

7) Find the area of the region in the first quadrant bounded on the left by the line $x = \frac{\pi}{6}$ and on the right by the curves $y = \tan^2 x$ and $y = \cos^2 x$. Round to four decimal places.

A) 4.3094 B) 0.3094 C) 0.4126 D) 0.5854

Find the volume of the solid generated by revolving the region bounded by the given lines and curves about the x-axis.

8) $y = \sqrt{25 - x^2}$, $y = 0$, $x = 0$, $x = 5$ 8) _____

A) 100π B) $\frac{250}{3}\pi$ C) 10π D) $\frac{500}{3}\pi$

9) $y = 4\csc x$, $y = 0$, $x = \frac{\pi}{4}$, $x = \frac{3\pi}{4}$ 9) _____

A) 16π B) 48π C) 8π D) 32π

10) $y = 7\csc x$, $y = 7\sqrt{2}$, $\frac{\pi}{4} \le x \le \frac{3\pi}{4}$ 10) _____

A) $49\pi^2 - 98\pi$ B) $49\pi^2 + 98\pi$ C) $7\pi^2 - 49\pi$ D) $\pi^2 + 14\pi$

9

$\left(\frac{1}{\cos x}\right)$

$\int_{\pi/4}^{3\pi/4} \pi (\csc x)^2 dx$

...bell rang