[PRINT]

**21S1 MH1810**,
SCSE HENDY, 11/10/21 at 12:06:58 PM SGT

## Question1: *Score 1/1*

Find

$$\frac{\mathrm{d}}{\mathrm{d}x}\int_{-x^2}^{0}\sin\left(8t^2\right)\mathrm{d}t$$

**Use a pair of parentheses "( )" when enter a function, e.g., enter sin(x) instead of sinx. Also it is necessary to use " * " for product.**

**Answer :**

| Your response | Correct response |
|---|---|
| 2x*sin(8x^4) | |

**Auto graded Grade:** 1/1.0 A+ 100%

Total grade: 1.0×1/1 = 100%

## Question2: *Score 1/1*

If

$$\int_0^6 f(x)\mathrm{d}x = 12,$$

find the value of

$$\int_1^{e^2}\frac{f(3\ln(x))}{x}\mathrm{d}x.$$

**Answer :**

| Your response | Correct response |
|---|---|
| 4 | |

**Auto graded Grade:** 1/1.0 A+ 100%

Total grade: 1.0×1/1 = 100%

## Question3: *Score 1/1*

Find

$$\int \frac{1}{x^2(x-7)}\,dx.$$

**Note : Use a pair of parentheses "( )" when you enter a function. E.g., enter $\ln(|x|)$ instead of $\ln|x|$. Also, please be reminded that it is necessary to insert " * " in a product.**

**Reminder: Do not include " + C " in your answer.**

**Answer :**

| Your response | Correct response |
|---|---|
| (x*ln(abs(x-7))+7-x*ln(abs(x)))/((7)^2*x) | |

**Auto graded** **Grade:** 1/1.0 A+ 100%

Total grade: 1.0×1/1 = 100%

## Question4: *Score 1/1*

Find

$$\int x^7 \sin\left(16+x^4\right)\,dx.$$

Note : Use a pair of parentheses "( )" for functions. E.g., enter sin(x) instead of sinx.

It is necessary to include multiplication sign " * " in a product.

**Reminder: Do not include " + C " in your answer.**

**Answer :**

| Your response | Correct response |
|---|---|
| (sin(x^4+16)-x^4*cos(x^4+16))/4 | |

**Auto graded** **Grade:** 1/1.0 A+ 100%

Total grade: 1.0×1/1 = 100%

## Question5: *Score 1/1*

Let $a$ be the integer that satisfies

$$\int_0^{a\pi} \cos^4(x)\,\mathrm{d}x = 6\pi.$$

Find $a$.

**Answer :**

| Your response | Correct response |
|---|---|
| 16 | |

**Auto graded** **Grade:** 1/1.0 A+ 100%

Total grade: 1.0×1/1 = 100%

## Question6: *Score 1/1*

Evaluate

$$\lim_{n\to\infty} \sum_{k=1}^{n} \frac{1}{\sqrt{n}} \frac{1}{\sqrt{15k+n}}.$$

Express the answer as a fraction.

**Answer :**

| Your response | Correct response |
|---|---|
| 2/5 | |

**Auto graded** **Grade:** 1/1.0 A+ 100%

Total grade: 1.0×1/1 = 100%

## Question7: *Score 1/1*

Evaluate

$$\lim_{n\to\infty} \left( \frac{1}{n+1} + \frac{1}{n+2} + \frac{1}{n+3} + \cdots + \frac{1}{6n} \right).$$

Note : Use a pair of parentheses "( )" when enter a function, e.g., enter $\ln(a)$ instead of $\ln a$.

**Answer :**

| Your response | Correct response |
|---|---|
| ln(6) | |

**Auto graded** **Grade:** 1/1.0 A+ 100%

Total grade: 1.0×1/1 = 100%

## Question8: *Score 1/1*

The speed of a runner during the first six seconds is recored (see the table below).

| $t$ (s) | $v$ (m/s) |
|---|---|
| 0 | 0 |
| 1 | 3 |
| 2 | 4 |
| 3 | 7 |
| 4 | 8 |
| 5 | 10 |
| 6 | 11 |

Estimate the distance the runner covered during those six seconds using **Trapezoidal Rule**. Express your answer in fraction.

**Answer :**

| Your response | Correct response |
|---|---|
| 75/2 | |

**Auto graded** **Grade:** 1/1.0 A+ 100%

Total grade: 1.0×1/1 = 100%

## Question9: *Score 1/1*

The speed of a runner during the first six seconds is recored (see the table below).

| $t$ (s) | $v$ (m/s) |
|---|---|
| 0 | 0 |
| 1 | 3 |
| 2 | 5 |
| 3 | 6 |
| 4 | 8 |
| 5 | 10 |
| 6 | 11 |

Estimate the distance the runner covered during those six seconds using **Simpson's Rule**. Express your answer in fraction.

**Answer :**

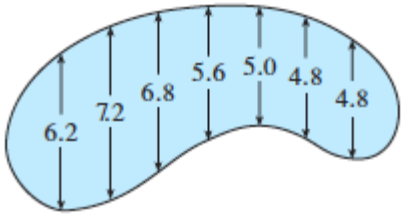
| Your response | Correct response |
|---|---|
| 113/3 | |

**Auto graded** **Grade:** 1/1.0 A+ 100%

Total grade: 1.0×1/1 = 100%

## Question10: *Score 1/1*

Let $R$ be the region as shown in the figure below. The widths, in meter, of $R$ is measured at $1$-meter intervals.




Estimate the area of $R$ by using **Simpson's Rule.** Express your answer in 2 decimal places.

**Answer :**

| Your response | Correct response |
|---|---|
| 42.13 | |

**Auto graded** **Grade:** 1/1.0 A+ 100%

Total grade: 1.0×1/1 = 100%

## Question11: *Score 1/1*

Find

$$\int_{-6}^{6} \frac{1 + 9x\cos(x)}{\pi\left(36 + x^2\right)}\,\mathrm{d}x.$$

Hint : The product of an even function and an odd function is an odd function.

**Answer :**

| Your response | Correct response |
|---|---|
| 1/12 | |

**Auto graded** **Grade:** 1/1.0 A+ 100%

Total grade: 1.0×1/1 = 100%

## Question12: *Score 1/1*

Find

$$\int_{-\infty}^{\infty} \frac{x^2}{\pi\left(9 + x^6\right)}\,\mathrm{d}x.$$

**Answer :**

| Your response | Correct response |
|---|---|
| -1/-9 | |

**Auto graded** **Grade:** 1/1.0 A+ 100%

Total grade: 1.0×1/1 = 100%

## Question13: *Score 1/1*

Let $R$ be the region bounded by the curve $16x = y^2$ and the line $y = 4x - 8$. Find the area of $R$.

**Answer :**

| Your response | Correct response |
|---|---|
| 18 | |

**Auto graded** **Grade:** 1/1.0 A+ 100%

Total grade: 1.0×1/1 = 100%

## Question14: *Score 1/1*

The region $R$ is bounded by $x$-axis, $y$-axis, the vertical line $x = \frac{\sqrt{\pi}}{3}$ and the graph $y = \frac{1}{\pi}\sin\left(9x^2\right)$. Find the volume of the solid obtained by rotating $R$ about $y$-axis by $2\pi$ radians.

**Answer :**

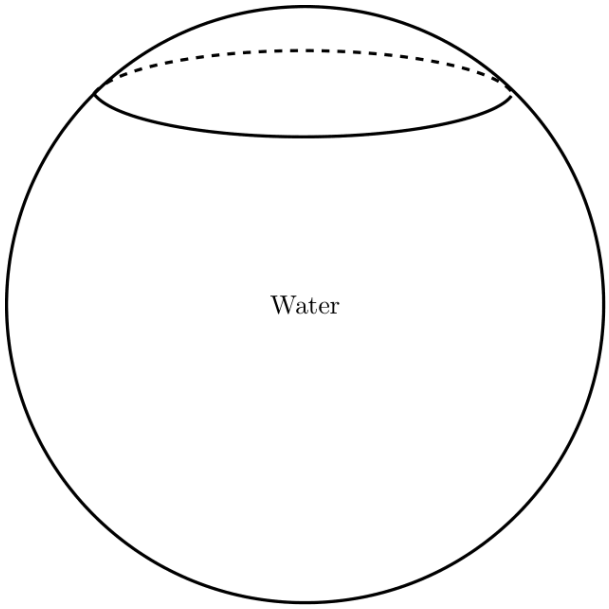
| Your response | Correct response |
|---|---|
| 2/9 | |

**Auto graded** **Grade:** 1/1.0 A+ 100%

Total grade: 1.0×1/1 = 100%

## Question15: *Score 1/1*

Consider a ball-shaped water tank (as shown below) with radius $R = 8$ m.




Find the volume of the water when the depth of the water is $12$ m.

**Answer :**

| Your response | Correct response |
|---|---|
| 576*Pi | |

**Auto graded** **Grade:** 1/1.0 A+ 100%

Total grade: 1.0×1/1 = 100%