

Week 13 Tuesday Homework (1329217)

Question 12345678910111213141516

1. Question DetailsSCalcET6 5.4.AE.02. [1290050]


[Video Example](#) [Online Textbook](#)**EXAMPLE 2** Evaluate the indefinite integral.

$$\int \frac{\cos(\theta)}{(\sin(\theta))^2} d\theta$$

SOLUTION This indefinite integral isn't immediately apparent the Table of Indefinite Integrals, so we use trigonometric identities to rewrite the function before integrating:

$$\begin{aligned} \int \frac{\cos(\theta)}{(\sin(\theta))^2} &= \int \left(\frac{1}{\sin(\theta)} \right) \left(\boxed{} \right) d\theta \\ &= \int \csc(\theta) \cot(\theta) d\theta = \boxed{} + C \end{aligned}$$

2. Question DetailsSCalcET6 5.4.AE.04. [1290054]

[Video Example](#) [Online Textbook](#)**EXAMPLE 4** Evaluate the following definite integral.

$$\int_0^3 \left(2x^3 - 10x + \frac{3}{x^2 + 1} \right) dx$$

SOLUTION The Fundamental Theorem gives

$$\begin{aligned} \int_0^3 \left(2x^3 - 10x + \frac{3}{x^2 + 1} \right) dx &= 2 \frac{x^4}{4} - 10 \frac{x^2}{2} + 3 \operatorname{atan}(x) \Big|_0^3 \\ &= \boxed{} - 5x^2 + 3 \operatorname{atan}(x) \Big|_0^3 \\ &= (3^4)/2 - 5(3^2) + 3 \operatorname{atan}(3) - \boxed{} \\ &= \boxed{} + 3 \operatorname{atan}(3) \end{aligned}$$

This is the exact value of the integral. If a decimal approximation is desired, we can use a calculator to approximate $\operatorname{atan}(3)$. Doing so, we get

$$\int_0^3 \left(2x^3 - 10x + \frac{3}{x^2 + 1} \right) dx \approx \boxed{}$$

3. Question DetailsSCalcET6 5.4.Tut.04. [700163]

4. Question DetailsSCalcET6 5.4.005. [1290326]
Find the general indefinite integral.

$$\int (8x^2 + 7x^{-2}) dx$$

+ C

5. Question DetailsSCalcET6 5.4.007. [1291624]
Find the general indefinite integral.

$$\int \left(7x^4 - \frac{1}{5}x^3 + \frac{1}{7}x - 8 \right) dx$$

+ C

6. Question DetailsSCalcET6 5.4.009. [1289929]
Find the general indefinite integral.

$$\int (7 - t)(6 + t^2) dt$$

+ C

7. Question DetailsSCalcET6 5.4.012. [1289901]
Find the general indefinite integral.

$$\int \left(9x^2 + 49 + \frac{4}{x^2 + 1} \right) dx$$

+ C

8. Question DetailsSCalcET6 5.4.017. [1290758]
Find the general indefinite integral. (If you need to use α enter alpha.)

$$\int 7(1 + (\tan(\alpha))^2) d\alpha$$

 + C

9. Question DetailsSCalcET6 5.4.021. [698663]
Evaluate the integral.

$$\int_0^2 (9x^2 - 7x + 4) dx$$

10. Question DetailsSCalcET6 5.4.023. [1290863]
Evaluate the integral.

$$\int_{-1}^0 (6x - e^x) dx$$

11. Question DetailsSCalcET6 5.4.028. [1290110]
Evaluate the integral.

$$\int_0^9 5\sqrt{5t} dt$$

12. Question DetailsSCalcET6 5.4.035. [698637]
Evaluate the integral.

$$\int_0^{\pi} (5\sin(\theta) - 18\cos(\theta)) d\theta$$

13. Question DetailsSCalcET6 5.4.041.MI. [1387968]
Evaluate the integral.

$$\int_0^1 \frac{3(t^2 - 1)}{t^4 - 1} dt$$

[Tutorial](#)

14. Question DetailsSCalcET6 5.4.043. [698605]
Evaluate the integral. (Give your answer as an improper fraction.)

$$\int_{-3}^4 (x - 2|x|) dx$$

15. Question DetailsSCalcET6 5.4.044. [872824]
Evaluate the integral.

$$\int_0^{3\pi/2} 11|\sin(x)| dx$$

16. Question DetailsSCalcET6 5.4.060.MI. [1387710]

The acceleration function $a(t)$ (in m/s^2) and the initial velocity $v(0)$ are given for a particle moving along a line.

$$a(t) = 2t + 2, \quad 0 \leq t \leq 3,$$

$$v(0) = -3$$

(a) Find the velocity $v(t)$ at time t .

$v(t) =$ m/s [Tutorial](#) (b) Find the total distance d traveled during the time interval given above.

$d =$ m [Tutorial](#)

Assignment Details

Name (AD): **Week 13 Tuesday Homework (1329217)**

Submissions Allowed: **5**

Category: **Homework**

Code:

Locked: **No**

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