professor **MFalk_137**

WeBWorK assignment number Exercises_2

This is an exercise assignment, treated differently from ordinary WeBWork assignments. The WeBWork due date is the same as the opening date, so that answers are available to students immediately. Students are to print the assignment and work the problems on paper. That work will be collected periodically and graded for effort. Exercises are worth 20 points (4% of the overall grade).

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1. **(1 pt) Library/maCalcDB/setIntegrals14Substitution/c4s5p2.pg**
Find

$$F(x) = \int x(x^2+2)^4\,dx$$

Give a specific function for $F(x)$.

F(x) = _____

Correct Answers:

- `(x*x+2)**(4+1)/(2*(4+1))`

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2. **(1 pt) Library/maCalcDB/setIntegrals14Substitution/mec_int2.pg**
Evaluate the indefinite integral.

$$\int \frac{(\arctan x)^5}{1+x^2}dx$$

_____

Correct Answers:

- `(arctan(x))^6 / 6`

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3. **(1 pt) Library/maCalcDB/setIntegrals14Substitution/mec_int3.pg**
Evaluate the indefinite integral.

$$\int \frac{e^{5x}}{e^{10x}+64}dx$$

_____

Correct Answers:

- `(1/(5*8))*arctan(e^(5 * x)/8)`

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4. **(1 pt) Library/maCalcDB/setIntegrals14Substitution/sc5_5_20.pg**
Evaluate the indefinite integral.

$$\int \frac{\cos x}{6\sin x+12}dx$$

_____ $+C$

Correct Answers:

- `0.166666666666667 * ln(sin(x) + 2)`

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5. **(1 pt) Library/maCalcDB/setIntegrals14Substitution/sc5_5_24.pg**
Evaluate the indefinite integral.

$$\int \frac{x^5}{x^6+1}dx$$

_____

[NOTE: Remeber to enter all necessary *, (, and) !!
Enter arctan(x) for $\tan^{-1}x$, sin(x) for $\sin x$.]

Correct Answers:

- `0.166666666666667 * ln(x^6 + 1)`

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6. **(1 pt) Library/maCalcDB/setIntegrals14Substitution/sc5_5_25.pg**
Evaluate the indefinite integral.

$$\int \frac{6\,dx}{x\ln(3x)}$$

_____

Correct Answers:

- `6 *ln(abs(ln(3 * x)))`

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7. **(1 pt) Library/maCalcDB/setIntegrals14Substitution/sc5_5_26.pg**
Evaluate the indefinite integral.

$$\int 4e^{4x}\sin(e^{4x})\,dx$$

_____

Correct Answers:

- `-cos(e^(4 * x))`

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8. **(1 pt) Library/maCalcDB/setIntegrals14Substitution/sc5_5_29.pg**
Evaluate the indefinite integral.

$$\int \frac{x+4}{x^2+8x}dx$$

_____

Correct Answers:

- `1/2 * ln(x^2 + 8 * x)`

9. **(1 pt) Library/maCalcDB/setIntegrals14Substitution/sc5_5_31.pg**
Evaluate the indefinite integral.

$$\int \frac{7x+2}{x^2+1}dx$$

_____

Correct Answers:

- `2 * arctan(x) + 0.5 * 7 * ln(x^2 + 1)`

10. **(1 pt) Library/maCalcDB/setIntegrals14Substitution/sc5_5_32.pg**
Evaluate the indefinite integral.

$$\int \frac{9x}{x^4+1}dx$$

_____

Correct Answers:

- `4.5 * arctan(x^2)`

11. **(1 pt) Library/maCalcDB/setIntegrals14Substitution/sc5_5_7.pg**
Evaluate the indefinite integral.

$$\int \frac{(\ln(x))^7}{x}dx$$

_____ $+C$

Correct Answers:

- `(ln(x)^8)/8`

12. **(1 pt) Library/ma123DB/set3/s7_4_43.pg**
Evaluate the definite integral.

$$\int_0^1 x^2\sqrt{9x+7}\,dx$$

Answer: _____

Correct Answers:

- `2/105*(-8*7^(7/2) + 16^(3/2) *851)/(9^3)`

13. **(1 pt) Library/ma122DB/set12/s5_5_65.pg**
Evaluate the definite integral.

$$\int_1^{e^6} \frac{dx}{x\sqrt{\ln x}}$$

Answer: _____

Correct Answers:

- `2 sqrt(6)`

14. **(1 pt) Library/Utah/Calculus_II/set5_Techniques_of_Integration-/set5_pr3.pg**
Find the indefinite integrals:

(a) $\int \frac{x^3}{x+1}dx =$ _____ $+C$.

(b) $\int \frac{x^3}{x^2+1}dx =$ _____ $+C$.

Correct Answers:

- `(x**3)/3 - (x**2)/2 + x - ln(abs(x+1))`
- `(x**2)/2 - (1/2)ln(x**2 + 1)`