

Name: \_\_\_\_\_

## INTEGRAL REVIEW

Evaluate each indefinite integral.

$$1) \int -24x^5 dx$$

$$-4x^6 + C$$

$$2) \int -3 dx$$

$$-3x + C$$

$$3) \int -6x dx$$

$$-3x^2 + C$$

$$4) \int 12x^2 dx$$

$$4x^3 + C$$

$$5) \int (-24x^5 - 10x) dx$$

$$-4x^6 - 5x^2 + C$$

$$6) \int (-9x^2 + 10x) dx$$

$$-3x^3 + 5x^2 + C$$

$$7) \int 4x^{-5} dx$$

$$-x^{-4} + C$$

$$\text{or } \frac{-1}{x^4} + C$$

$$9) \int (-2x^{-3} + 20x^{-5}) dx$$

$$x^{-2} + -5x^{-4} + C$$

$$8) \int -2x^{-3} dx$$

$$-x^{-2} + C$$

$$\text{or } \frac{-1}{x^2} + C$$

$$10) \int (-4x^{-3} - 20x^{-5}) dx$$

$$2x^{-2} + 5x^{-4} + C$$

$$11) \int \left( \frac{4}{x^3} - \frac{8}{x^5} \right) dx = \int (-4x^{-3} - 8x^{-5}) dx$$

$$= 2x^{-2} + 2x^{-4} + C$$

$$12) \int \left( \frac{15}{x^4} + \frac{8}{x^5} \right) dx = \int (15x^{-4} + 8x^{-5}) dx$$

$$= -5x^{-3} - 2x^{-4} + C$$

Find the following definite integrals of each of the following problems between -1 and 2:

$$1) \int_{-1}^2 -24x^5 dx$$
$$= -4x^6 \Big|_{-1}^2 = -4(2)^6 - -4(-1)^6$$
$$= -252 \text{ u}^2$$

$$2) \int_{-1}^2 -3 dx$$
$$= 9 \text{ u}^2$$

$$3) \int_{-1}^2 -6x dx$$
$$= -9 \text{ u}^2$$

$$4) \int_{-1}^2 12x^2 dx$$
$$= 36 \text{ u}^2$$

$$5) \int_{-1}^2 (-24x^5 - 10x) dx$$
$$= -267 \text{ u}^2$$

$$6) \int_{-1}^2 (-9x^2 + 10x) dx$$
$$= -12 \text{ u}^2$$

$$7) \int_{-1}^2 4x^{-5} dx$$
$$= \frac{-1}{x^4} \Big|_{-1}^2$$
$$\frac{-1}{16} - - \left( \frac{1}{(-1)^4} \right)$$
$$\frac{-1}{16} + 1 = \frac{15}{16} \text{ u}^2$$

$$8) \int_{-1}^2 -2x^{-3} dx$$
$$\frac{1}{x^2} \Big|_{-1}^2$$
$$\frac{1}{(2)^2} - \frac{1}{(-1)^2}$$
$$\frac{1}{4} - 1 = \frac{-3}{4} \text{ u}^2$$