

## CALCULUS I - Worksheet #34

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Find the volume of the solid that is generated by rotating about the indicated axis the region bounded by the given curves.

1.  $y = \frac{1}{x}$ ,  $y = 0$ ,  $x = \frac{1}{10}$ ,  $x = 1$  (x)

2.  $y = 9 - x^2$ ,  $y = 0$  (x)

3.  $y = x^2$ ,  $y = 8 - x^2$  (x)

4.  $y = x - x^3$ ,  $y = 0$ , 1st quadrant (x)

5.  $y = 6 - x^2$ ,  $y = 2$  (y)

6.  $x = 16 - y^2$ ,  $x = 0$ ,  $y = 0$  (x)

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Graph the region bounded by the given curves and then find its area.

7.  $y = x^{1/3}$ ,  $y = x^3$ , 1st quadrant

8.  $y = x^2$ ,  $x = y^2$

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9. Find the volume if you revolve the area between  $y = x^2$  and  $y = 2x$  around the line  $x = 2$ .

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10. If  $k(x)$  is a continuous function and  $\int_{-2}^{10} k(x) dx = 5$  and  $\int_{-1}^{10} k(x) dx = 14$  then find  $\int_{-2}^{-1} k(x) dx$ .

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11.  $\sum_{k=0}^5 (2k^2 + 3) =$

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12.  $\int 7^{2x} dx =$

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13.  $\int \sin^{-1} x dx =$

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14. If  $f(x)$  is continuous on the interval  $n \leq x \leq m$  and  $n < p < m$ , then  $\int_p^m f(x) dx =$

(write your answer as a sum or difference of integrals)

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