

Review WS1  
AP Calculus AB

1.  $\int_{-4}^3 |x| dx =$

2.  $\int_1^3 dx =$

3.  $\int \sin(\sin x) \cos x dx =$

4. If the position of a particle is  $x(t) = 2t^3 - 6t^2 + 12t - 18$ ,  $t > 0$ , find when the particle is changing direction.

5. The voltage,  $V$ , in an electrical circuit is related to the current,  $I$ , and the resistance,  $R$ , by the equation  $V=IR$ . The current is decreasing at a rate of  $-4$  amps/sec as the resistance increases at 20 ohms/sec. How fast is the voltage changing when the voltage is 100 volts and the current is 20 amps?

6.  $f(x) = x^4 - 4x^3$

(a) Find the intervals on which  $f$  is increasing and decreasing. (b) Find the intervals on which  $f$  is concave up and concave down. (c) Find the  $x$ -coordinates of the inflection point(s).

7.

	sign of $f'(x)$	sign of $f''(x)$
$x < 1$	+	-
$1 < x < 2$	-	-
$2 < x < 3$	-	+
$3 < x$	+	+

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next lesson: Find the area between the curve  $y = x$  and the curve  $y = x^2$  from  $x = 2$  to  $x = 4$ .

"Area between 2 curves"