

Homework 12 Final Answers

1(a), (b) -20

11. $\frac{1}{3}(x^2+1)^{3/2} + \sqrt{x^2+1} + C$

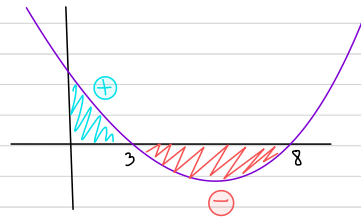
2. $g''(x) = \frac{-\sin(2x)}{\sqrt{1-\cos(2x)}}$

12. $\frac{(x+1)^{16}}{16} - \frac{(x+1)^{15}}{15} + C$

3. $-\frac{1}{56}(30-x^8)^7 + C$

13. $v(t) = t^2 - 11t + 24$

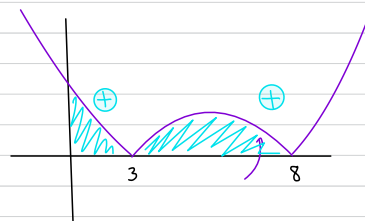
4. 3



5. $\frac{7}{5}\sin(5x) + \frac{5}{7}\cos(7x) + C$

$v(t) = |t^2 - 11t + 24|$

6. $\frac{1}{56}$



7. $-\frac{61}{2}$

Cases:

8. $\frac{1}{2\pi}$

$|v(t)| = |t^2 - 11t + 24|$

9. $\frac{-2\sqrt{7}}{\sqrt{x+4}} + C$

$$= \begin{cases} t^2 - 11t + 24 & \text{if } t \leq 3 \text{ or } t \geq 8 \\ -t^2 + 11t - 24 & \text{if } 3 < t < 8 \end{cases}$$

10. $\frac{9}{4}$

Displacement = $\int_0^8 t^2 - 11t + 24 dt$

Total Distance = $\int_0^3 t^2 - 11t + 24 dt + \int_3^8 -t^2 + 11t + 24 dt$

Do Not Need to Compute these