Math 252 Homework 5 Written Part **Name:** KEY

Write legibly. Show your work. Graph neatly. Use a ruler for all straight lines.

Showing your work neatly, completely, and correctly, find each integral.
Notice that you should write each step going DOWN the page.

(1) $\int_{-2}^{1}(3x^2-5)\,dx$

$= x^3 - 5x\Big]_{-2}^{1}$ ✓

$= (1-5)-(-8+10)$ ✓

$= -4-2$

$\boxed{=-6}$ ✓

(2) $\int_{1}^{5}(4x-6x^2)\,dx$

$= 2x^2 - 2x^3\Big]_{1}^{5}$ ✓

$= (2(25)-2(125))-(2-2)$ ✓

$= 50-250-0$

$\boxed{= -200}$ ✓

(3) $\int_{4}^{25} 3\sqrt{x}\,dx$

$= \int_{4}^{25} 3x^{\frac{1}{2}}\,dx$

$= \cancel{3}\left(\frac{2}{\cancel{3}}x^{\frac{3}{2}}\right)\Big]_{4}^{25}$ ✓

$= 2(25)^{3/2} - 2(4)^{3/2}$ ✓

$= 2(125)-2(8)$

$= 250-16$

$\boxed{= 234}$ ✓

(4) $\int_{\frac{\pi}{3}}^{\pi}\cos(x)\,dx$

$= \sin(x)\Big]_{\frac{\pi}{3}}^{\pi}$ ✓

$= \sin(\pi) - \sin\left(\frac{\pi}{3}\right)$ ✓

$= 0 - \frac{\sqrt{3}}{2}$

$\boxed{= -\frac{\sqrt{3}}{2}}$ ✓