

Math 181 Honors Quiz #6

① $\int_0^3 (x-1)^4 dx$

② $\int_0^{\pi/4} \cos x dx$

③ $\int_0^3 |x^2 - 1| dx$

④ Convert the repeating decimal $2.\overline{14}$ into a fraction of the form $\frac{p}{q}$ where p and q are integers.

⑤ Find the vertex of the parabola $y = 3x^2 + 5x - 17$.

⑥ Find the sum

$$5^2 + 6^2 + 7^2 + \dots + 12^2$$

using the formula $\sum_{k=1}^n k^2 = \frac{n^3}{3} + \frac{n^2}{2} + \frac{n}{6}$.