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$$f(x) \begin{cases} cx^2 & 0 \leq x \leq 1 \\ 0 & \text{altrove} \end{cases} \quad c > 0$$

$$1) \int_0^1 cx^2 dx = \left[ c \frac{x^3}{3} \right]_0^1 = \frac{c}{3}$$

$$c = 3 //$$

$$2) \int_0^1 x \cdot 3x^2 dx = \left[ \frac{3x^4}{4} \right]_0^1 = \frac{3}{4} //$$

$$3) \int_0^1 \left(x - \frac{3}{4}\right)^2 \cdot 3x^2 dx = \int_0^1 \left(x^2 - \frac{3}{2}x + \frac{9}{16}\right) \cdot 3x^2 dx$$

$$\int_0^1 \left(3x^4 - \frac{9}{2}x^3 + \frac{27}{16}x^2\right) dx = \frac{3}{80} //$$

$$4) P(x \leq 0.5) = \int_0^{1/2} 3x^2 dx = \frac{1}{8} //$$