

$y := x^{2/3}$

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(1)

$s := simplify(int(2 * Pi * y * sqrt(1 + (diff(y, x))^2), x = 0..1))$

$$-\frac{2}{1215} \pi \left(-64 + 90 \operatorname{hypergeom}\left(\left[-\frac{1}{6}, \frac{1}{2}, \frac{7}{6}\right], \left[\frac{4}{3}, \frac{5}{3}\right], -\frac{64}{729}\right) - 270 \operatorname{hypergeom}\left(\left[-\frac{1}{2}, \frac{1}{6}, \frac{5}{6}\right], \left[\frac{2}{3}, \frac{4}{3}\right], -\frac{64}{729}\right) - 729 \operatorname{hypergeom}\left(\left[-\frac{5}{6}, -\frac{1}{6}, \frac{1}{2}\right], \left[\frac{1}{3}, \frac{2}{3}\right], -\frac{64}{729}\right) \right)$$

(2)

$evalf(s)$

4.936417710

(3)