Exercise 72

Thomas' Calculus Early Transcendentals

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Explanation

Verified

Step 1

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The value of integral is minimal when $f(x) \leq 0.$

We solve

$$x^4 - 2x^2 \leq 0$$

$$x^2(x^2 - 2) \leq 0$$

$$x = 0 \quad \text{or} \quad x^2 \leq 2$$

$$-\sqrt{2} \leq x \leq \sqrt{2}.$$

Now, for $a = -\sqrt{2}$ and $b = \sqrt{2}$ the integral is minimized.

Result

2 of 2

$$a = -\sqrt{2}, b = \sqrt{2}$$

Exercise 71

Exercise 73