

Calculus 6.1 Example 2 Part B Uncut Scene

Lesson 304 | Calculus AB | Area between curves

<https://www.youtube.com/watch?v=OnSdpNnvQxY>

Related review: exact coverage needs teacher confirmation.

Name: _____ Date: _____ Show your reasoning.

01

Find the area between $y=23x$ and $y=x^2$ from $x=0$ to their other intersection.

02

Find the area between $y=18x$ and $y=x^2$ from $x=0$ to their other intersection.

03

Find the area between $y=13x$ and $y=x^2$ from $x=0$ to their other intersection.

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04

Find the area between $y=7x$ and $y=x^2$ from $x=0$ to their other intersection.

05

Find the area between $y=11x$ and $y=x^2$ from $x=0$ to their other intersection.

06

Find the area between $y=8x$ and $y=x^2$ from $x=0$ to their other intersection.

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01

Find the area between $y=23x$ and $y=x^2$ from $x=0$ to their other intersection.

Intersections solve $x(x-23)=0$, so $x=0,23$. Line is above parabola there.

$$A = \int_0^{23} (23x - x^2) dx = \left[\frac{23x^2}{2} - \frac{x^3}{3} \right]_0^{23} = \frac{12167}{6}.$$

02

Find the area between $y=18x$ and $y=x^2$ from $x=0$ to their other intersection.

Intersections solve $x(x-18)=0$, so $x=0,18$. Line is above parabola there.

$$A = \int_0^{18} (18x - x^2) dx = \left[\frac{18x^2}{2} - \frac{x^3}{3} \right]_0^{18} = 972.$$

03

Find the area between $y=13x$ and $y=x^2$ from $x=0$ to their other intersection.

Intersections solve $x(x-13)=0$, so $x=0,13$. Line is above parabola there.

$$A = \int_0^{13} (13x - x^2) dx = \left[\frac{13x^2}{2} - \frac{x^3}{3} \right]_0^{13} = \frac{2197}{6}.$$

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04

Find the area between $y=7x$ and $y=x^2$ from $x=0$ to their other intersection.

Intersections solve $x(x-7)=0$, so $x=0,7$. Line is above parabola there.

$$A = \int_0^7 (7x - x^2) dx = \left[7x^2/2 - x^3/3 \right]_0^7 = 343/6.$$

05

Find the area between $y=11x$ and $y=x^2$ from $x=0$ to their other intersection.

Intersections solve $x(x-11)=0$, so $x=0,11$. Line is above parabola there.

$$A = \int_0^{11} (11x - x^2) dx = \left[11x^2/2 - x^3/3 \right]_0^{11} = 1331/6.$$

06

Find the area between $y=8x$ and $y=x^2$ from $x=0$ to their other intersection.

Intersections solve $x(x-8)=0$, so $x=0,8$. Line is above parabola there.

$$A = \int_0^8 (8x - x^2) dx = \left[8x^2/2 - x^3/3 \right]_0^8 = 256/3.$$