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Precalculus_G11_Ch12_Test

Indicate the answer choice that best completes the statement or answers the question.

1. Find an equation for the slope of the graph of $y = \frac{7}{x^3} - \frac{5}{2}$ at any point.

a. $-\frac{7}{x^2}$ b. $\frac{21}{x^2}$

c. $\frac{7}{x^4}$ d. $-\frac{21}{x^4}$

2. Use a graphing calculator to find the value of the limit. $\lim\limits_{x \to \infty} \frac{9x^4 + 2}{7x^4}$.

a. 0 b. $\frac{7}{9}$

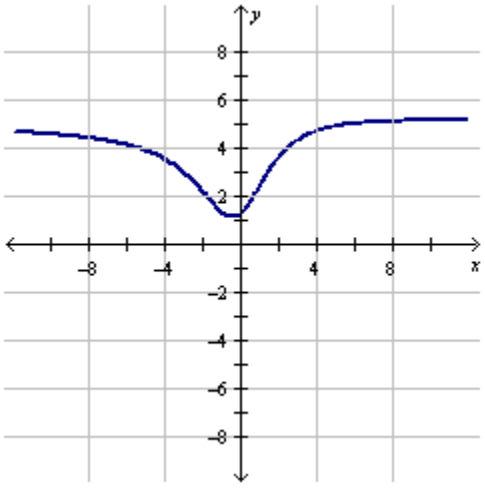
c. $\frac{2}{7}$ d. $\frac{9}{7}$

3. Which is the area between the x-axis and $y = x^3$ from $x = 1$ to $x = 6$?

a. $\frac{6^3 - 1^3}{3} = \frac{215}{3}$ b. $\frac{6^3 + 1^3}{3} = \frac{217}{3}$

c. $\frac{6^4 + 1^4}{4} = \frac{1297}{4}$ d. $\frac{6^4 - 1^4}{4} = \frac{1295}{4}$

4. Estimate $\lim\limits_{x \to \infty} \frac{5x^2 + 3x + 6}{x^2 + 5}$ using a graph.



a. 0 b. 5

c. ∞ d. Limit does not exist.

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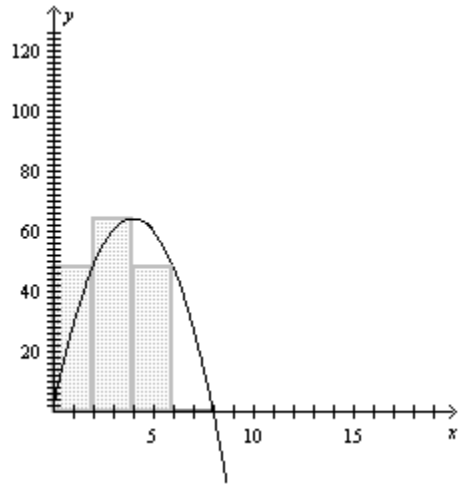
5. Find the approximate area between the curve $f(x) = -4x^2 + 32x$ and the x-axis on the interval $[0, 8]$ using 4 rectangles. Use the right endpoint of each rectangle to determine the height.

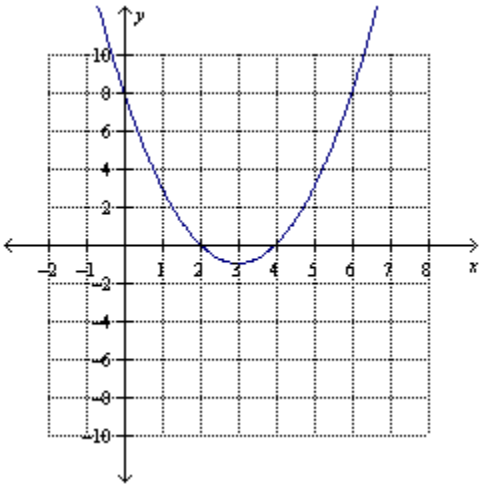


a. 320 square units b. 288 square units
c. 160 square units d. 1152 square units

6. Use the Quotient Rule to find the derivative of $f(x) = \frac{7x}{13x - 17}$.

a. $\frac{x - 37}{(13x - 17)^2}$ b. $\frac{x + 119}{(13x - 17)^2}$
c. $-\frac{119}{(13x - 17)^2}$ d. $\frac{37}{(13x - 17)^2}$

7. Estimate $\lim_{x \to 2} x^2 - 6x + 8$ using a graph.



a. 24 b. –8
c. 0 d. Limit does not exist.

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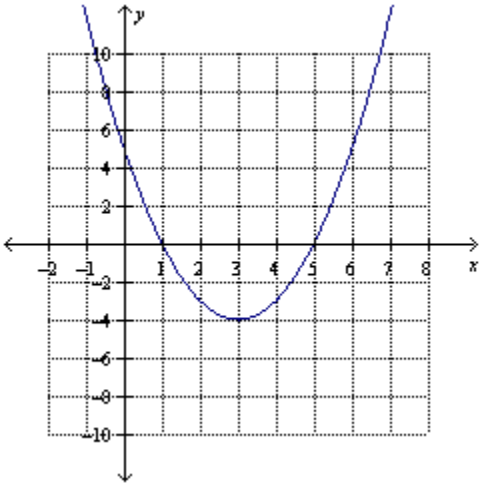
8. Estimate $\lim_{x \to 3} x^2 - 6x + 5$using a graph.



a. 32 b. –9

c. –4 d. Limit does not exist.

9. Estimate $\lim_{x \to \infty} \frac{6x^6 - 2x + 2}{3x^6 - 3}$.

a. 0 b. 2

c. ∞ d. Limit does not exist.

10. Evaluate the indefinite integral. $\int \left(5x^5 + 4x^4 - 4\right) dx$

a. $\frac{5}{6}x^5 + \frac{4}{5}x^4 + C$ b. $\frac{5}{6}x^6 + \frac{4}{5}x^5 - 4x + C$

c. $\frac{5}{6}x^6 + \frac{4}{5}x^5 + C$ d. $\frac{5}{6}x^5 + \frac{4}{5}x^4 - 4x + C$

11. Use limits to evaluate the integral. $\int_0^2 7x^3 \, dx$

a. 112 b. 28

c. 14 d. 2

12. Estimate $\lim_{x \to 5} 5x^3 - 5x^2 + 3x - 5$.

a. 510 b. 770

c. 520 d. Limit does not exist.

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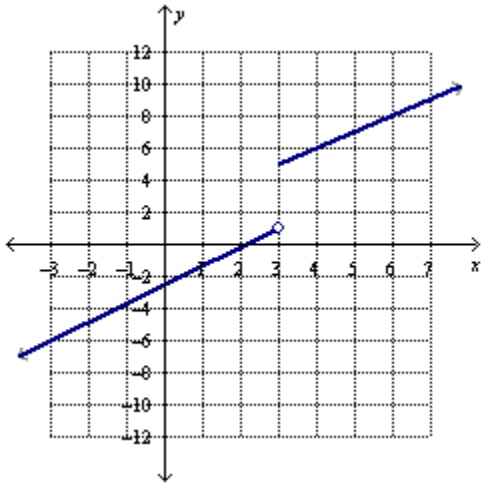
13. Use limits to evaluate the integral. $\int_0^4 5x^3\,dx$

a. 1280 b. 16
c. 320 d. 80

14. Estimate $\lim_{x \to 3} f(x)$ where $f(x) = \begin{cases} x-2 & x < 3 \\ x+2 & x \geq 3 \end{cases}$.



a. 6 b. 5
c. 1 d. Limit does not exist.

15. Use limits to evaluate the integral. $\int_0^4 4x^3\,dx$

a. 256 b. 64
c. 1024 d. 16

16. Use the Fundamental Theorem of Calculus to find the area of the region between the graph of the function $\frac{9}{5}x^{\frac{2}{7}} + \frac{8}{5}x^{\frac{4}{9}} + 8$ and the *x*-axis on the interval $[1, 10]$. Round off your answer to the nearest integer.

a. 129 units^2 b. 127 units^2
c. 154 units^2 d. 135 units^2

17. Estimate $\lim_{x \to \infty} x^5 - 4x^3 + 4x + 2$.

a. 2 b. 1
c. ∞ d. $-\infty$

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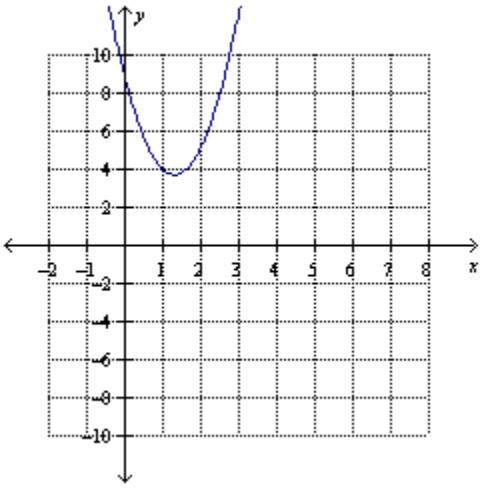
18. Evaluate the indefinite integral. $\int \left(3x^5 - 2x^2 - 5\right) dx$

a. $\frac{1}{2}x^5 - \frac{2}{3}x^2 + C$ b. $\frac{1}{2}x^6 - \frac{2}{3}x^3 - 5x + C$

c. $\frac{1}{2}x^6 - \frac{2}{3}x^3 + C$ d. $\frac{1}{2}x^5 - \frac{2}{3}x^2 - 5x + C$

19. Estimate $\lim_{x \to 3} 3x^2 - 8x + 9$ using a graph.



a. 3 b. 60

c. 12 d. Limit does not exist.

20. Estimate $\lim_{x \to 2} 3x^2 - 5x + 8$ using a graph.

a. 30 b. 2

c. 10 d. Limit does not exist.

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