Exam

Name_____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

1) Find the exact area of the region bounded by $y = x^2 + 1$, $x = 1$, $x = 3$, and the x-axis. Also sketch the region. 1) _____

2) Find the exact area of the region bounded by $y = x^2 - 4x$ and the x-axis. Also sketch the region. 2) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

3) The exact area of the region bounded by the graphs of $y = x^2 + x + 1$, $x = -2$, $x = 1$, and the x-axis is 3) _____

A) $\frac{11}{2}$ sq units.

B) $\frac{7}{2}$ sq units.

C) $\frac{5}{2}$ sq units.

D) $\frac{13}{2}$ sq units.

E) $\frac{9}{2}$ sq units.

4) The exact area of the region bounded by the graphs of $y = x^2 - 4$, and the x-axis from $x = 0$ to $x = 4$ is 4) _____

A) $\frac{32}{3}$ sq units.

B) 12 sq units.

C) $\frac{64}{3}$ sq units.

D) $\frac{16}{3}$ sq units.

E) 16 sq units.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

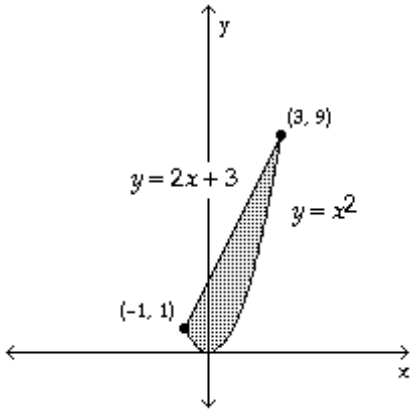
5) Use definite integrals to find the area between $y = -x^2$, the x-axis, $x = -1$, and $x = 1$. 5) _____

6) Find the exact area of the region bounded by $y = f(x) = e^x + x$, $x = 0$, $x = 2$, and the x-axis. 6) _____

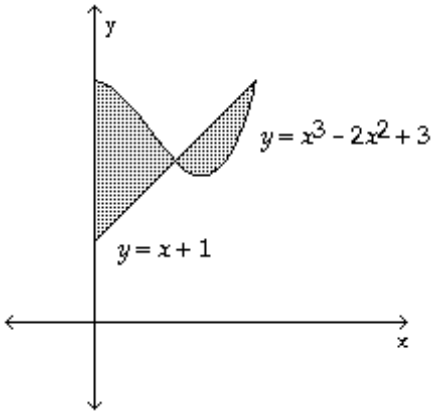
7) Find the exact area of the region bounded by $y = f(x) = 8 - 2x - x^2$ and the x-axis. 7) _____

8) Find the exact area of the region bounded by $y = f(x) = \sqrt{2x + 5}$, $x = -2$, $x = 2$, and the x-axis. 8) _____

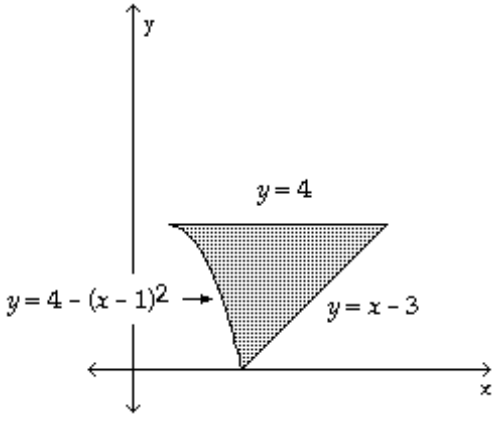
9) Express the area of the shaded region in terms of an integral (or integrals). Do not evaluate the expression: 9) _____



10) Express the area of the shaded region in terms of an integral (or integrals). Do not evaluate the expression: 10) _____



11) Express the area of the shaded region in terms of an integral (or integrals). Do not evaluate the expression: 11) _____



12) Find the exact area of the region bounded by the graphs of $y = 8 - 2x - x^2$ and $y = 3x + 2$. Also sketch the region. 12) _____

13) Find the exact area of the region bounded by the graphs of $y = 9 - x^2$ and $y = 5 - 3x$. Also sketch the region. 13) _____

14) Find the exact area of the region bounded by the graphs of $y = -x$, $y = 2x$, $y = 1$, and $y = 2$. Also sketch the region. 14) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

15) The exact area of the region bounded by the graphs of $y = x$ and $y = x^2$ is 15) _____

A) $\frac{1}{2}$ sq unit. B) $\frac{2}{3}$ sq unit. C) $\frac{1}{3}$ sq unit. D) $\frac{5}{6}$ sq unit. E) $\frac{1}{6}$ sq unit.

16) The exact area of the region bounded by the graphs of $y = x^2 - 5$ and $y = 2x + 3$ is 16) _____

A) 24 sq units.

B) $\frac{28}{3}$ sq units.

C) 60 sq units.

D) $\frac{73}{3}$ sq units.

E) 36 sq units.

17) The exact area of the region bounded by the graphs of $y = x$, $y = \frac{x}{2}$, $y = 2$, and $y = 3$ is 17) _____

A) $\frac{3}{2}$ sq units.

B) $\frac{3}{4}$ sq units.

C) $\frac{5}{2}$ sq units.

D) $\frac{5}{4}$ sq units.

E) $\frac{7}{4}$ sq units.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

18) Find the area of the region enclosed by the graphs of $y = x^3 - x^2$ and $y = 2x$. 18) _____

19) Find the area of the region bounded by the curves $y = x^2$ and $y = x + 2$ from $x = 1$ to $x = 2$. 19) _____

20) Find the area of the region bounded by the curves $y = x^2 - 4$ and $y = 2x + x^2$ from $x = 1$ to $x = 2$. 20) _____

21) Find the area of the region bounded by the given equations: 21) _____

$y = x^2 + 6x + 10$ and $y = x + 6$