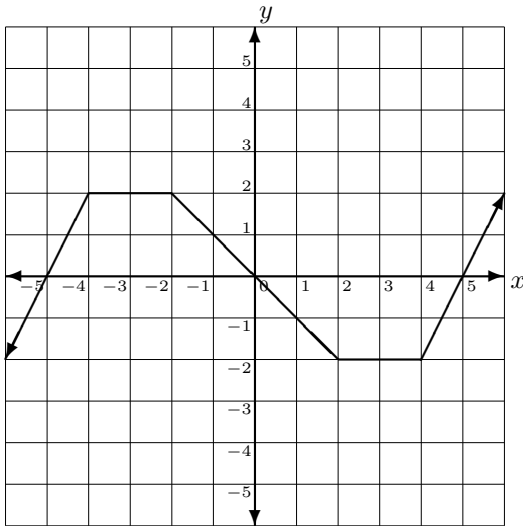SHOW ALL WORK FOR FULL CREDIT — SIMPLIFY ALL ANSWERS — CIRCLE FINAL ANSWER
GIVE EXACT ANSWERS FOR ALL PROBLEMS — NO DECIMAL ANSWERS

1. For the function $y = f(x)$ graphed below, find the following:

(a) (0.5 pt) $\displaystyle\int_0^2 f(x)\, dx =$

(b) (0.5 pt) $\displaystyle\int_{-4}^{-2} f(x)\, dx =$

(c) (0.5 pt) $\displaystyle\int_{-2}^2 f(x)\, dx =$

(d) (0.5 pt) $\displaystyle\int_{-2}^1 f(x)\, dx =$

(e) (0.5 pt) $\displaystyle\int_{-2}^3 f(x)\, dx =$

2. (1 pt) Find: $\displaystyle\int \left(\frac{3}{4\sqrt{x}} - \frac{6}{\sqrt[3]{x}} \right) dx$

3. (1.5 pts) Find: $\displaystyle\int x^4 e^{x^5+3}\, dx$

Exam Score: Current Grade:

$$\overline{} = \overline{30}\,\overline{180} \qquad \overline{762} =$$

4. (2 pts) Find: $\displaystyle\int \frac{8x^3 - 6x^2 + 7x - 2}{x^2}\, dx$

5. (1.5 pts) Find: $\displaystyle\int \frac{x^3 - 3x}{(x^4 - 6x^2 + 5)^6}\, dx$

6. (1.5 pts) Find: $\int \left(6x^{2/3} + 8x^{-3/2} - 4x^{-3/4}\right) dx$

7. (2 pts) Find: $\int \left(18x^3 - 12x^2 + 6x - 5\right) dx$

8. (1 pt) Find: $\int \left(\frac{3}{4}x^5 - \frac{7}{8}x^{5/2}\right) dx$

9. (1 pt) Find: $\displaystyle\int_3^7 \frac{3}{x^2}\,dx$
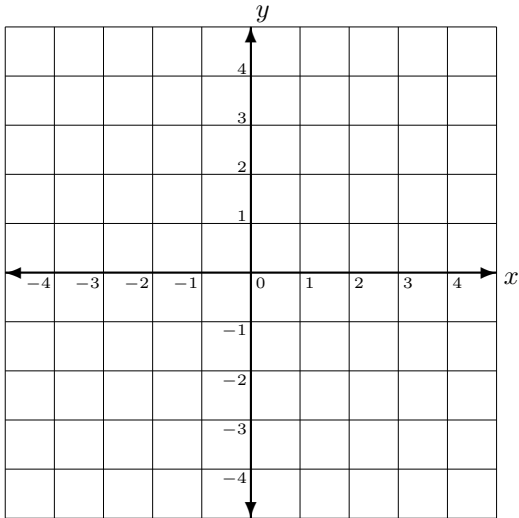
10. (1.5 pts) Find: $\displaystyle\int (4x+2)\sqrt{x^2+x-4}\,dx$

11. (2 pts) Find: $\displaystyle\int_0^2 (x-3)(x^2-6x+5)^2\,dx$

12. (2 pts) Find: $\displaystyle\int_0^4 \frac{x}{\sqrt{x^2+9}}\,dx$

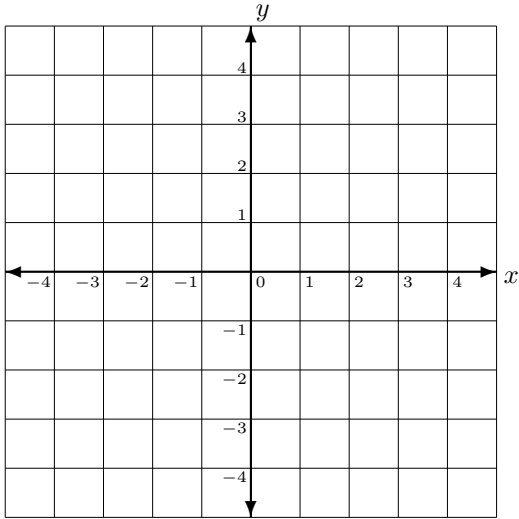13. (1.5 pts) Find: $\displaystyle\int_{-8}^{8} \left(2x + \sqrt[3]{x}\right)\, dx$

14. (2 pts) Find the area of the region bounded by the graphs of $y = \sqrt{x}$, $y = -\dfrac{1}{2}x + 4$, and $x = 0$. Be sure to first graph this region on the axis below.
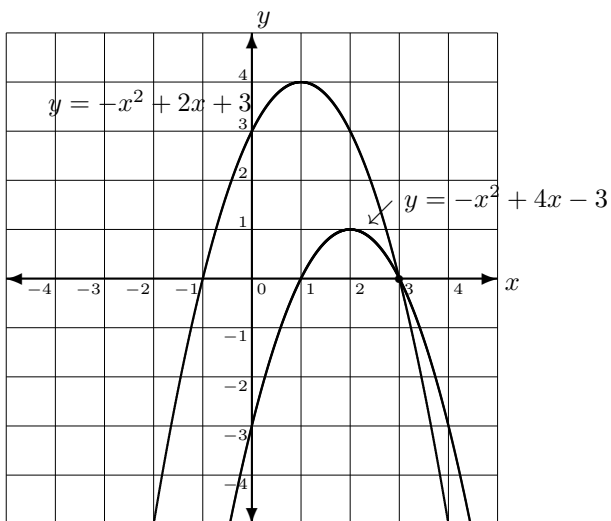
15. (2 pts) Find the area of the region bounded by the graphs of $y = \dfrac{1}{2}x + 1$, $y = 3$, and $x \geq 0$. Be sure to first graph this region on the axis below.

16. (2 pts) Find the area of the region bounded by the graphs of $y = x^2$ and $y = -x^2 + 2$. Be sure to first graph this region on the axis below.

17. (1.5 pts) Find the area of the region bounded by the graphs of $y = -x^2 + 2x + 3$, $y = -x^2 + 4x - 3$, and $x = 0$.

$y = -x^2 + 2x + 3$

$y = -x^2 + 4x - 3$

18. (1.5 pts) Find the area of the region bounded by the graphs of $y = \sqrt{x}+2$, $y = x^2-4x+2$, $x = 0$, and $x = 4$.