

Calculus — Problem Set 27

2. $y' = -\frac{3}{2}x^{\frac{5}{2}} - \frac{1}{3}e^x - 4\sin x$

4. $D_u y = 4u - \frac{1}{9}u^{-\frac{2}{3}}$

6. $\frac{d^3 y}{dx^3} = 3e^x - 12$

8. $f''(14) = -\frac{1}{14^2} = -\frac{1}{196}$

10. -0.3012

12. $\frac{1}{2}\cos 2\theta + \frac{1}{2} = \cos^2 \theta$

14. $\frac{(y-1)^2}{9} - \frac{x^2}{4} = 1$

$y = 1 + \frac{3}{2}\sqrt{4+x^2}$

$y = 1 - \frac{3}{2}\sqrt{4+x^2}$

$(0, -2) (0, 4)$

16. 1.4650

18. $\frac{19}{60}$

20. 2

22. $1, -2, 3$

24. $x = \frac{5}{4-a}$

Calculus — Problem Set 28

2.

4. $s''(t) = g$

6. 4.7964

8. $y = -x + 2$

10. $(x-1)^2 + (y+6)^2 = 31$

$y = -6 + \sqrt{-x^2 + 2x + 30}$

$y = -6 - \sqrt{-x^2 + 2x + 30}$

12. $g(x)$ is $f(x)$ shifted to the right 2 units and up 1 unit

14. No solution

16. $b = \sqrt[31]{53}$

18. $\{x \in \mathbb{Z} \mid -4 \leq x \leq 5\}$

20. $\frac{1}{4}$

22. $-2 - 2\sqrt{2} + \sqrt{3} + \sqrt{6}$

24. The line through the midpoints of two sides of a triangle is parallel to the third side.