## FINAL EXAM

**1.** $-31$ [1.2D]  **2.** $-1$ [1.3B]  **3.** $33 - 10x$ [1.3C]  **4.** 8 [2.1B]  **5.** $\frac{2}{3}$ [2.1C]  **6.** 4 and $-\frac{2}{3}$ [2.5A]

**7.** [3.3C]



x-intercept: $\left(\frac{9}{2}, 0\right)$

y-intercept: $(0, -3)$

**8.** $y = -3x + 7$ [3.5B]  **9.** $y = -\frac{2}{3}x - \frac{1}{3}$ [3.6A]  **10.** $6a^3 - 5a^2 + 10a$ [5.3A]
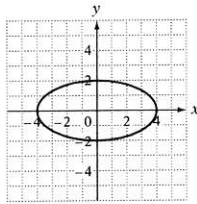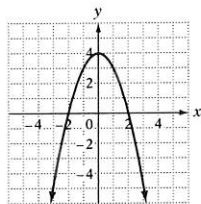
**11.** $(2 - xy)(4 + 2xy + x^2y^2)$ [5.6B]  **12.** $(x - y)(1 + x)(1 - x)$ [5.6D]  **13.** $x^2 - 2x - 3 - \frac{5}{2x - 3}$ [5.4A]

**14.** $\frac{x(x - 1)}{2x - 5}$ [6.1C]  **15.** $\frac{-10x}{(x + 2)(x - 3)}$ [6.2B]  **16.** $\frac{x + 3}{x + 1}$ [6.3A]  **17.** $-\frac{7}{4}$ [6.5A]  **18.** $d = \frac{a_n - a_1}{n - 1}$ [2.1D]

**19.** $\frac{y^4}{162x^3}$ [5.1B]  **20.** $\frac{1}{64x^8y^5}$ [7.1A]  **21.** $-2x^2y\sqrt{2y}$ [7.2B]  **22.** $\frac{x^2\sqrt{2y}}{2y^2}$ [7.2D]  **23.** $\frac{6}{5} - \frac{3}{5}i$ [7.3D]
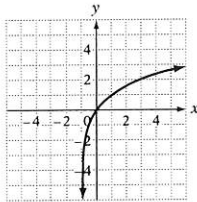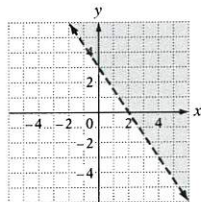
**24.** $2x^2 - 3x - 2 = 0$ [8.1B]  **25.** $\frac{3 + \sqrt{17}}{4}$ and $\frac{3 - \sqrt{17}}{4}$ [8.3A]  **26.** 27 and $-8$ [8.4A]  **27.** $\frac{3}{2}$ and $-2$ [8.4C]

**28.** [11.1A]  **29.** [11.3A]  **30.** $f^{-1}(x) = \frac{3}{2}x + 6$ [9.4B]  **31.** $(3, 4)$ [4.2A]





**32.** 10 [4.3A]  **33.** $\left(\frac{5}{2}, -\frac{3}{2}\right)$ [11.4A]  **34.** $\left\{x \,|\, x > \frac{3}{2}\right\}$ [2.4B]  **35.** $\{x \,|\, -4 < x < -1\}$ [2.5B]

**36.** [3.7A]  **37.** [10.3A]  **38.** $\log_2 \frac{a^2}{b^2}$ [10.2B]  **39.** 6 [10.4B]





**40.** $2y + 2y^2 + 2y^3 + 2y^4 + 2y^5$ [12.1B]  **41.** $\frac{23}{45}$ [12.3C]  **42.** $144x^7y^2$ [12.4A]  **43.** The range of scores is $69 \le x \le 100$. [2.4C]  **44.** The cyclist rode 40 mi. [2.3C]  **45.** There is $8000 invested at 8.5% and $4000 invested at 6.4%. [4.1C]  **46.** The length is 20 ft. The width is 7 ft. [8.6A]  **47.** An additional 200 shares are needed. [6.4A]  **48.** The rate of the plane was 420 mph. [4.4B]  **49.** The object has fallen 88 ft when the speed reaches 75 ft/s. [7.4B]  **50.** The rate of the plane for the first 360 mi was 120 mph. [8.6A]  **51.** The intensity is 200 foot-candles. [6.6A]  **52.** The rate of the boat is 12.5 mph. The rate of the current is 2.5 mph. [4.4A]  **53.** The value of the investment after two years would be $4785.65. [10.5A]  **54.** The house would be worth $256,571 in 20 years. [12.3D]