

Math 80: Some partial answers to Sample Problems for Midterm 3 (Chapters 6 – 8)

1. $X = 1.058$ or $x = -3.308$
2. (a) 7 sec (b) 196 ft after 3.5 sec
3. (a) $y = -4x^2 + 48x - 132$ (b) $x = \pm\sqrt{3}$ (c) (0, -8)
 (d) $(x+4)^2 - 12$ (e) $2+4\sqrt{2}$ $7-4\sqrt{2}$ (f) $\frac{x^9}{27}$
 (g) $\sqrt[6]{x^5}$ (h) $-2+4i$ (i) $-2+21$ (j) $\frac{7}{10} + \frac{9}{10}i$
 (k) False (l) False
 (m)
 i. $\frac{1}{x^6}$ ii. $\frac{2}{x^3}$ iii. x^9 iv. x^6
 v. $10x^2$ vi. $\frac{1}{x}$ vii. $\frac{1}{4x}$ viii. $\frac{x}{4}$
 ix. $\frac{a^3}{8}$ x. $\frac{1}{27}$ xi. $\frac{-1}{x^2}$ xii. $2a^3b^2$
4. (a) all Real numbers $x \neq -5, 1/2$ (b) $x = -5$ and $x = 1/2$ (c) (0, -5)
 (d) $(5/2, 0)$ and $(-5/2, 0)$
5. (a) $\frac{1}{3w^2}$ (b) $\frac{-2}{3(3+h)}$
6. (b) $7\frac{2}{9}oz$
7. (a) (0, 50) (b) 277 deer (c) 25 years (d) 750 deer
8. (a) $x = 63$ (b) $x = 32$ or -28 (c) $t = 7.85$ (d) $b = \frac{1}{2}$
 (e) $x = 0.34$ (f) $x = 4.70$ (g) $x = 2/3$ or -5 (h) $x = 7.25$
 (i) $x = -1$ or $13/3$ (j) $x = 7+2i$ or $x = 7-2i$
9. (b) $T = \frac{200-x}{8.8} + \frac{\sqrt{2500+x^2}}{3.6}$
 (c) $x = 22.4$ which means 177.6 ft from current position (d) 35.4 sec.
10. (c) 1.6% each year (e) \$110,752.10 (f) between 2018 and 2019
11. (b) 20.63%
12. (a) \$18,193.97 (b) 15.5 years
13. (b) $x = 81$; $x = 2.303$; $x = 1.778$; $x = 5.437$; $x = 1.609$
 (c) $1 + \log x$ $2x$ $-6x$ $\log x - 4$ $-\log x$ $x+3$
14. (a) 5.77 years
15. (a) T (b) F F (c) T (d) T (e) F (f) F
 (g) T (h) 49 (i) F (j) F (k) T (l) $x = 1.5$
 (m) F (n) F (o) all reals $x \neq \frac{-9}{2}$ or $\frac{-13}{4}$ (p) $(A+B)(A-B)$
 (q) F (r) F