

Math 099, Sample Exam 3, Answer Key:

1. $\frac{1}{2m^3}$

2. $\frac{64y^3}{x^3z^3}$

3. $2x^8y^3\sqrt[3]{x}$

4. $16x + 8\sqrt{xy} + y$

5. $\frac{x-13}{(x+2)(x-3)}$

6. $\frac{3(x-4)(x+6)}{x-5}$

7. $\frac{1}{6}$

8. $\ln(8p^8)$

9. (3,10)

10. $p(t) = 10(3)^x$

11a) 264 feet

11b) 7.06 seconds

12a) $\frac{33}{12}$

12b) $\frac{6a-1}{a+2}$

12c) $x \approx -\frac{8}{3}$

12d) $(-\frac{1}{2}, 0)$

12e) $(0, \frac{3}{7})$

13a) Independent (N): Number of times Facebook is checked; Dependent (t): Time spent prepping

13b) Linear as when N increases by 2, time t decreases by 15

13c) $t(N) = 130 - \frac{15}{2}N$

14a) \$ 5,372.54

14b) ≈ 11.90 years

15a) $[-5, 4]$ or $-5 \leq x \leq 4$

15b) $[-2, 4]$ or $-2 \leq y \leq 4$

15c) 2

15d) $x = 4$

16. $c = \frac{-3y-x}{6}$ or $c = -\frac{3y+x}{6}$

17. $x = 22$

18. $m = \frac{25}{6}$

19. $x = 5 \pm \sqrt{13}$

20. $m = 4$

21. $t = \frac{3 \pm \sqrt{2}}{2}$ or $t = \frac{3}{2} \pm \frac{\sqrt{2}}{2}$

22a) $(-0.80, 0)$ or $(0, 0)$ or $(0.72, 0)$

22b) $(0, 0)$

22c) $(-0.83, 0.17)$