MTH061: Review for Final Exam – Answer Key

1. a. 5 b. $\frac{24}{17}$ c. $-\frac{72}{7}$ d. -5

e. 2 f. $-\frac{8}{125}$

2. a. $\frac{p^{12}s^4}{16q^{12}r^8}$ b. $100t^{18}$ c. $2c^{11}d^{24}$ d. $6x$

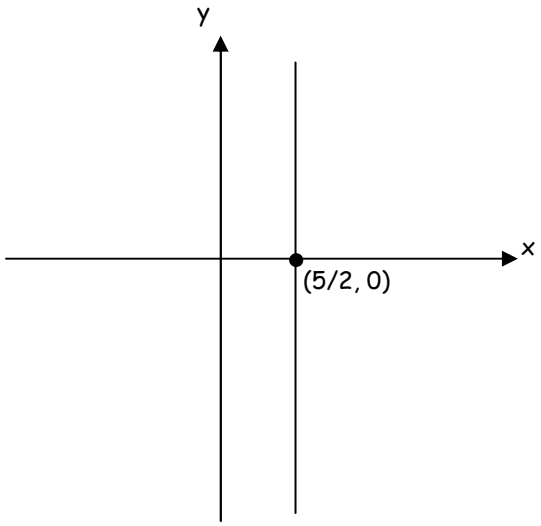
e. $40x - 28$ f. $2x^{25}$ g. $\frac{8x^5}{27y^4}$ h. $(a+b)^5$

3. a. $\frac{17h^5m^7n^2}{20k^8}$ b. $\frac{v^6}{64t^6u^6}$ c. x^2y^2 d. $\frac{7}{a^9b^8}$ e. $\frac{1}{144}k^{16}m^2$

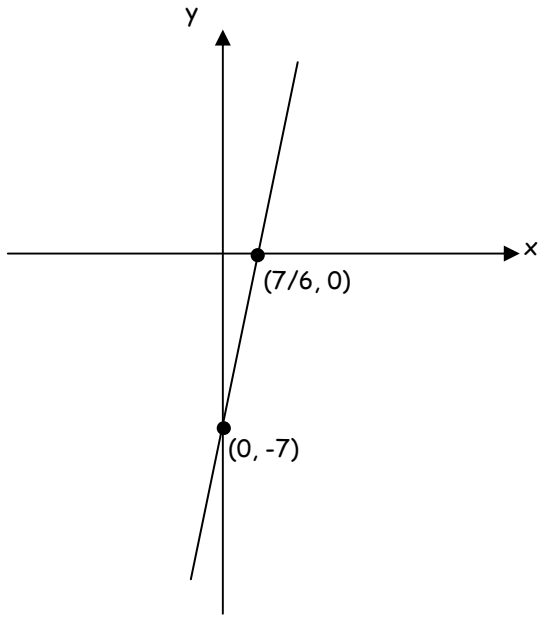
4. a. $x = 21$ b. $x = -2$ c. $x = \frac{A-P}{PR}$ d. $x = -15$

5. a. [5, 8) b. (5, ∞) c. $\left(-\infty, -\frac{11}{2}\right] \cup (-2, \infty)$

6a. Graph of $x - \frac{5}{2} = 0$. (No y-intercept)



6b. Graph of $6x - y = 7$



7. a. $y = 7x - 9$ b. $y = -8x - 1$ c. $y = -\frac{4}{9}x + 2$ d. $y = \frac{3}{2}x + 4$

e. $y = -\frac{1}{3}x - 5$ f. $y = \frac{1}{2}x - 7$ g. $y = 9$ h. $x = 4$

8. a. parallel b. neither c. perpendicular

9. a. $3x + y = -4$ b. $x - 4y = -7$

10. a. $x + 4y = -20$ b. $x = -1$

11. a. one solution b. no solution c. infinite number of solutions

12. a. (-10,1) b. Ø

13. a. infinite number of solutions b. (2,1)

14. (1, 1)

15. a. $-15t^7 - 6t^6 + \frac{15}{4}t^5$ b. $-7w^3 - 13w^2 + 9$

c. $2x^2 - 9xy - 18y^2$ d. $4c^4 - \frac{8}{3}c^3 - 42c^2 + 32c - 72$

e. $-24x^4 - 36x^3 + 60x^2$ f. $3r^3 + 25r^2 + 46r + 24$

g. $-z^2 + \frac{16}{9}$ h. $49x^2 + 28x + 4$

i. $5y^2 - 30y + 45$ j. $a^4 - 14a^2 + 49$

k. $-9b^2 - 4$ l. $u^2v^2 + 16uv - 15$

m. $15r^3 - 11r^2 + 7r + 7$ n. $4x^2 - 12x - 2$

16. a. $4x^4y^5 - 9x^3y^3 + 2xy^2$ b. $\frac{3}{4}c^7d^5 + \frac{1}{3}c^5d^4 - c^3$

c. $2x^2 + 2x - 5$ d. $4a^3 - a^2 + 6a + 5$

e. $6t + 5 + \frac{20}{t - 8}$ f. $3w^2 - w - 1 + \frac{4}{5w^2 + 7}$

g. $x^3 - x^2 + x - 1$ h. $3t^2 - 24t + 6$

17. a. $2(a - 9)(a + 9)$ b. $5(r + 1)(r^2 - r + 1)$

c. $-2(x - 2)^2$ d. $6a(3a + 2)$

e. $(4t + 1)(t - 8)$ f. $(a - c)(a^2 + ac + c^2)$

g. $k(2k - 1)(2k + 3)$ h. $(x + 1)(2x - y)$

i. Prime j. $3(3w^2 + w - 5)$

k. Prime l. $2(x - 3y)(a + 2b)$

m. $x^2y(3x + 5)(7x + 2)$ n. $-b(b + 6)(b - 6)$ or $b(6 + b)(6 - b)$

18. 40π inches^3

19. perimeter = 44 inches, area = 98 inches^2

20. area = $3x^2 + 2x - 26$ square units

21. perimeter = $6w^2 - 2w - 6$ units, area = $3w^3 - 23w^2 + 18w - 28$ square units

22. $3n^2 - n + 5$ units

23. S3.3, Example 2

24. S3.4, You Try 4

25. S3.7, You Try 8