

SM005 Final Exam Key

Fall 2016-2017

14 Dec 2016

Part 1:

1. C
2. B
3. E
4. A
5. A
6. B
7. D
8. C
9. E
10. B
11. C
12. A
13. C
14. D
15. A
16. B
17. A
18. B
19. A
20. B

Part 2:

21. $y = \frac{3}{2}x + \frac{1}{2}$
22. $\frac{2}{3}\pi$
23. $\frac{11x+2}{4x^2+x}$
24. $\frac{a^2c^2}{b^8}$
25. $(x - 4)(x + 3)$
26. $\frac{18}{7}$
27. $-\frac{\pi}{6} = -30^\circ$
28. $(-\infty, 4]$
29. $\sqrt{10}$
30. 0 radians or 0°
31. 1

32. $\frac{\pi}{2} = 90^\circ$

33. 2

34. 1

35. $3i\sqrt{6}$

36. (1,-1)

37. $x - 2 - \frac{3}{x}$

38. 1

39. x-intercepts (-1,0) and (1,0); y-intercept and vertex (0,1)

40. $6\sqrt{3}$

41. Falls left, rises right, x-intercepts (-2,0) and (3,0), bounces off x-axis at (-2,0) and crosses at (3,0), y-intercept (0,-48), not symmetric, max number of turning points is 2

42.

a. $\frac{x+3}{x-5}, x \neq 5$

b. $1 + \frac{8}{x-5}$

c. Horizontal asymptote: $y = 1$, Vertical asymptote: $x = 5$, Hole: $x = -5$

43. .

a. $(-\frac{1}{2}, 0), (3,0)$

b. (0, -3)

c. $(\frac{5}{4}, -\frac{49}{8})$

44. 23 years

45. .

a. D: $(-\infty, \infty)$, R: $[-\frac{1}{2}, \frac{1}{2}]$

b. 2π

c. $\frac{1}{2}$

d. .

46. $x = -\frac{3}{8} \pm \frac{i\sqrt{7}}{8}$