Name:_____ Class:_____ Date:_____

Final Exam Review

Answer Key

1. $a = 16.2$

2. 58.2°

3. 150°

4. 80°

5. -2

6. $\frac{-\sqrt{2}}{2}$

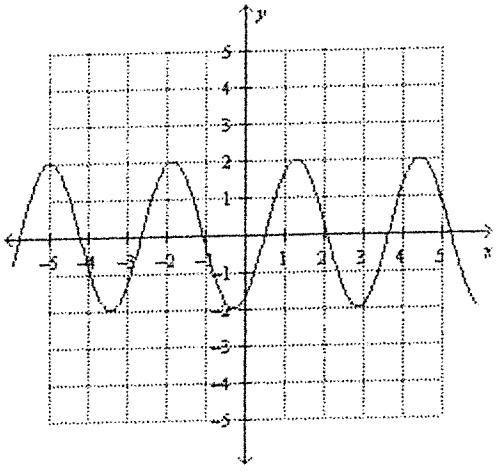
7. $-\frac{1}{2}$

8. $\sin\theta = \frac{4}{5}$, $\cos\theta = \frac{3}{5}$, $\csc\theta = \frac{5}{4}$, $\sec\theta = \frac{5}{3}$, $\cot\theta = \frac{3}{4}$

9. 2; π; $\frac{3}{4}\pi$; 4

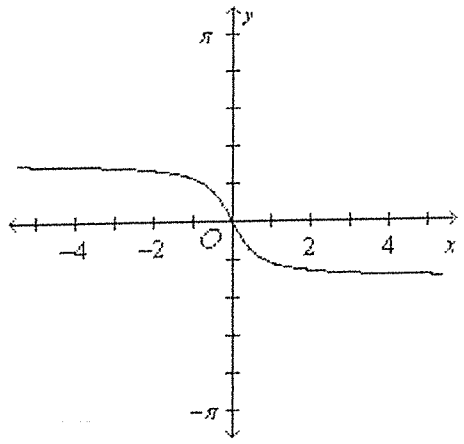
10. $y = 3\sin(\frac{1}{3}\theta + \frac{3}{3}\pi) + 1$

11. amplitude: 2; period: π; phase shift: $\frac{\pi}{6}$



Name:_____ Class:_____ Date:_____

Final Exam Review

12. 

13. $-\frac{1}{3}\pi$

14. $\frac{3}{4}\pi$

15. $C = 67°$, $a = 8.28$, $c = 8.99$

16. 0

17. 3.6

18. 43.5 units^2

19. 123 units^2

20. $\frac{-6\sqrt{37}}{37}$

21. $\cot x$

22. $\cos x \sin x$

23. $2\tan^2 x$

24. sec x + 1

25.
$$\begin{aligned} 1 - 2\sin x\cos x &= (\sin x - \cos x)^2 \\ &= \sin^2 x - 2\sin x\cos x + \cos^2 x \\ &= (\sin^2 x + \cos^2 x) - 2\sin x\cos x \\ &= 1 - 2\sin x\cos x \end{aligned}$$

26. $\tan 13x$

Final Exam Review

27. $x = \frac{2\pi}{3}, \frac{4\pi}{3}, \pi$

28. $x = \frac{\pi}{3}, \frac{2\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}$

29. $\cos\left(\frac{-2\pi}{35}\right)$

30. $\frac{-\sqrt{3}+1}{2\sqrt{2}}$

31. cos 12x

32. $\frac{-4\sqrt{5}}{9}$

33. $\frac{x}{\sqrt{x^2+1}}$

34.
$$\begin{aligned}\cos(270° + \theta) &= \cos 270° \cos\theta - \sin 270° \sin\theta \\ &= (0)\cos\theta - (-1)\sin\theta \\ &= \sin\theta\end{aligned}$$

35. $\frac{\pi}{4}, \frac{5\pi}{4}$

36. $\langle -\frac{15}{17}, -\frac{8}{17} \rangle$

37. $\frac{14\sqrt{32}}{81}$

38. <–4, 6>

39. $\langle -15, -15\sqrt{3} \rangle$

40. 123.7°

41. The resultant velocity of the throw is about 40.3 meters per second at an angle of about 39.1° with the horizontal.

42. 98.1°

Final Exam Review

43. no

44. 762

45. 6

46. $24.25

47. $a_n = -28 - 47(n - 1)$

48. 81

49. 5832

50. 729

51. $a_n = 13(3)n^{-1}$

52. ±27, 81, ±243

53. 15.5

54. 36

55. 22.3156

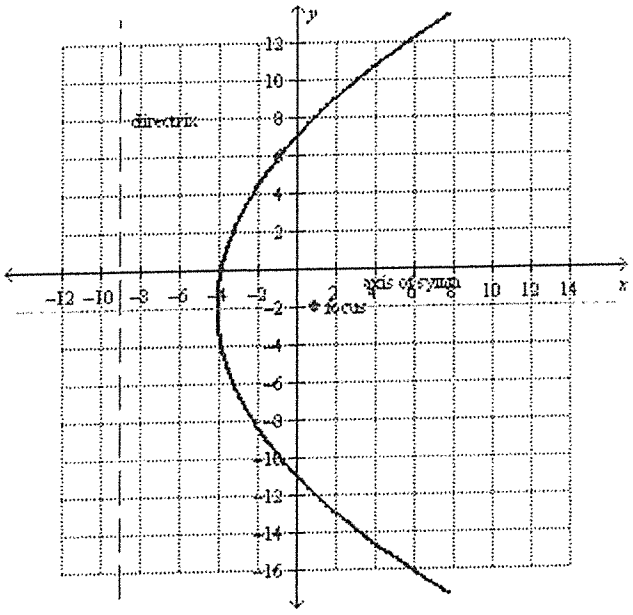
56. $59{,}049a^5 - 32{,}805a^4m + 7{,}290a^3m^2 - 810a^2m^3 + 45am^4 - m^5$

57. 22,680

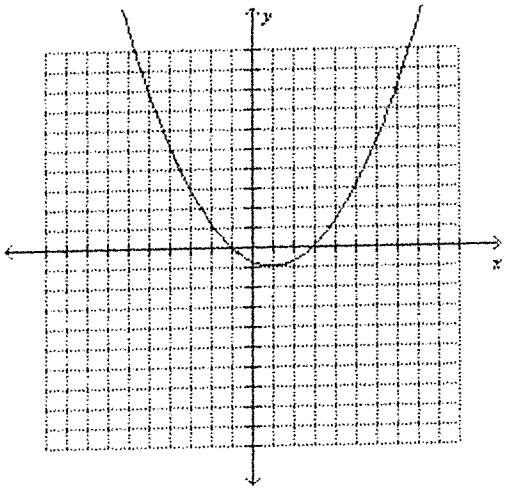
58. vertex: (–4, –2)
focus: (1, –2)
axis of symmetry: $y = -2$
directrix: $x = -9$

Name:_____ Class:_____ Date:_____

Final Exam Review



59.

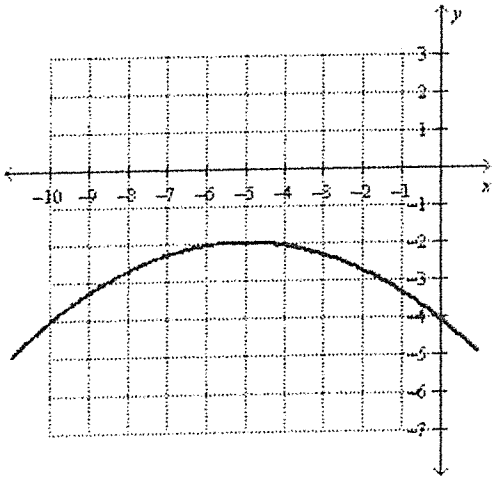


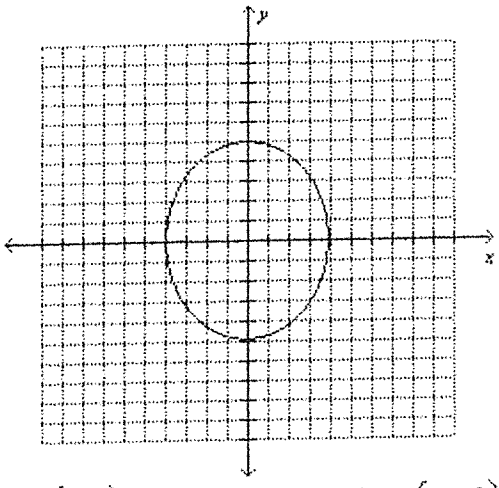
vertex: $(1, -1)$; focus: $(1, 0)$; directrix: $y = -2$; axis of symmetry: $x = 1$

60. $-12(y+2) = (x+5)^2$

Name:_____ Class:_____ Date:_____

Final Exam Review





61.

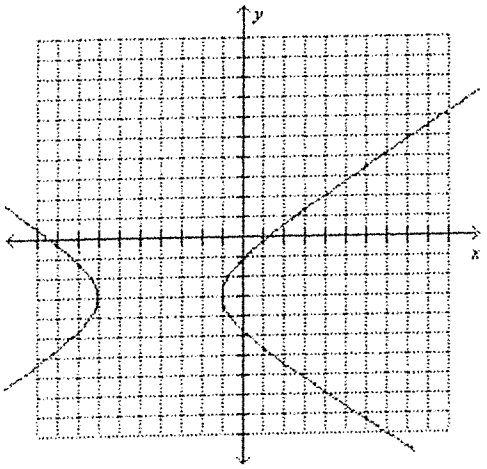
Center: $(0, 0)$; foci: $(0, \pm 3)$; vertices: $(-4, 0), (4, 0), (0, -5), (0, 5)$

62. $\frac{x^2}{40} + \frac{y^2}{36} = 1$

63.

$\frac{(x+5)^2}{4} + \frac{(y+1)^2}{1} = 1$; ellipse

Final Exam Review

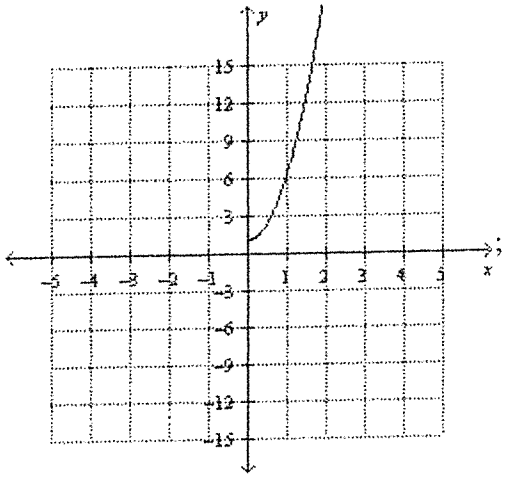
64. 

Center: $(-4, -3)$; foci: $(-4\pm\sqrt{13}, -3)$; vertices: $(-7, -3), (-1, -3)$;

asymptotes: $y+3 = \pm\frac{2}{3}(x+4)$

65. $\frac{y^2}{36} - \frac{x^2}{25} = 1$

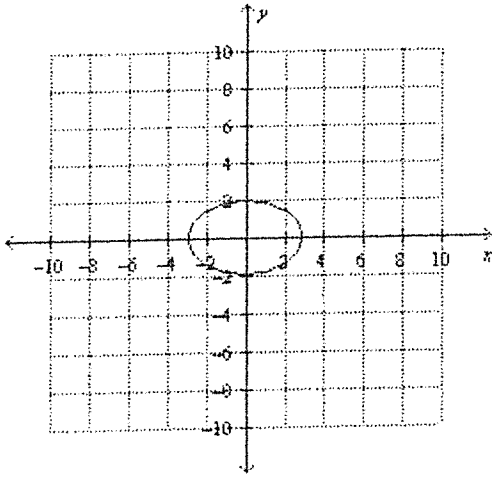
66. ellipse

67. $y = 5x^2 + 1$;  ; $x \geq 0$

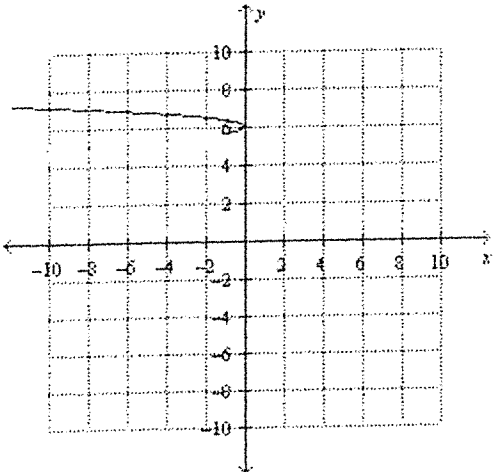
68. $\frac{x^2}{9} + \frac{y^2}{4} = 1$;

Name:_____ Class:_____ Date:_____

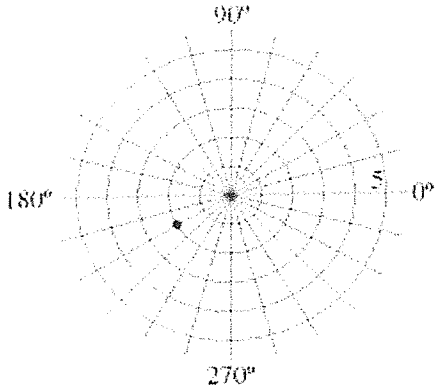
Final Exam Review



69.

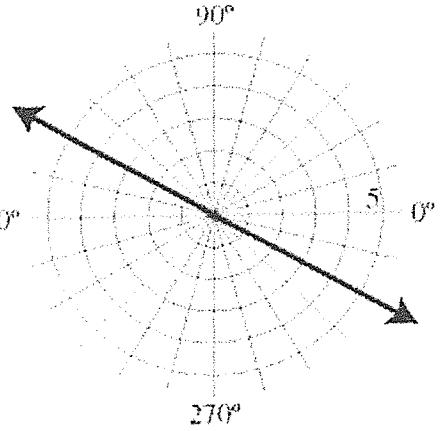


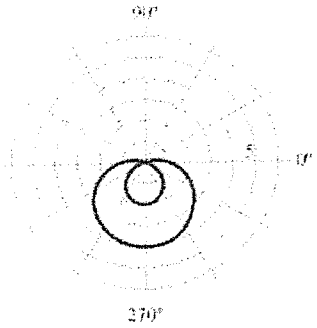
70.



Name:_____ Class:_____ Date:_____

Final Exam Review

71. 

72. 

73. $\left(-\frac{7\sqrt{3}}{2}, \frac{7}{2}\right)$

74. $(2\sqrt{2}, 3\pi/4)$

75. $y = \sqrt{3}x$

76. $(x+9)^2 + y^2 = 81$