2007 Final Exam SM005 – Precalculus

1. 17x / 35	2. y = 3x – 5	3. 270°
4. 3 / 2x	5. (x + 5)(x + 4)	6. e
7. e	8. c	9. c
10. e	11. e	12. d
13. a	14. a	15. b
16. e	17. b	18. b
19. a	20. d	21. b
22. d	23. a	24. d
25. e		

26. $y = Ca^x$ | $y = Ca^x$
$3 = Ca^0$ | $12 = 3a^1$
$3 = C$ | $4 = a$

$f(x) = 3(4^x)$

27. A) $9x + 6 = e^2$

$x = \frac{e^2 - 6}{9}$

B) $\frac{1}{\cos^2\theta} = 2$

$\cos^2\theta = \frac{1}{2}$

$\cos\theta = \frac{\pm\sqrt{2}}{2}$

$\theta = \frac{\pi}{4} + \pi k \quad \frac{3\pi}{4} + \pi k$

-OR-

$\theta = \frac{\pi}{4} + 2\pi k, \quad \frac{3\pi}{4} + 2\pi k$

$\frac{5\pi}{4} + 2\pi k, \quad \frac{7\pi}{4} + 2\pi k$

28. $f(g(-5)) =$ undefined

$g(f(-2)) = g(-2)$
$= 1$

29. $(250 \text{ mph})(\frac{1}{2} \text{ hr}) = 125$ miles

$4^2 + 125^2 = \text{hypot}^2$

$15641 =$

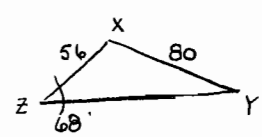
$125.1 \approx$ hypot

30. $\frac{(x-8)(x+5)(x+5)}{(x+5)(x-5)(-1)(x-8)}$

$-\frac{x+5}{x-5}$

31. Angle - Side - Side Triangle

Since 80 > 56, Only 1 possible Δ



$\frac{\sin(68)}{80} = \frac{\sin(Y)}{56}$

$\sin(Y) = .6490$

$m\angle Y \approx 40.5$

$68° + 40.5 + X° = 180$

$m\angle X = 71.5$

$\frac{\sin(68)}{80} = \frac{\sin(71.5)}{x}$

$x \approx 81.82$

31 B) $A = \frac{1}{2}ab\sin(50)$

$= \frac{1}{2}(9)(13)(\sin 50)$

≈ 44.8

32. A) $416 = 2t + 7\sqrt{t} + 269$

$t = 49$ days

B) $\frac{1}{x} = \frac{2x}{2x} + \frac{5}{2x}$

$\frac{1}{x} = \frac{2x+5}{2x}$

$2x^2 + 5x = 2x$

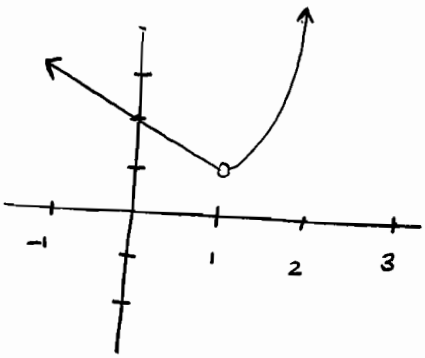
$2x^2 + 3x = 0$

$x(2x+3) = 0$

$x = \cancel{0}, -\frac{3}{2}$

Reject 0

33.



B) Domain: $(-\infty, 1) \cup (1, \infty)$

Range: $(1, \infty)$

C) Inc: $(1, \infty)$

Dec: $(-\infty, 1)$

34. $a = 5$

$k = \frac{1}{3}$

$b = 0$

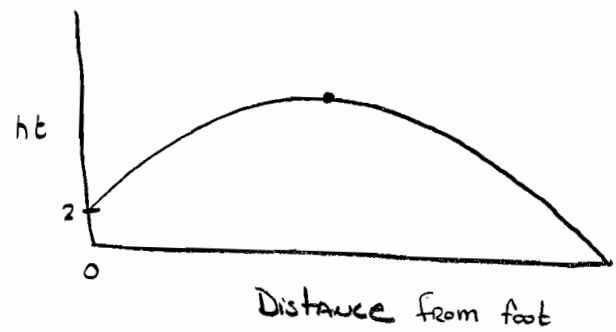
$c = 0$

Per $= 6\pi$

$\frac{2\pi}{k} = 6\pi$

No Vert or Horiz Shifts

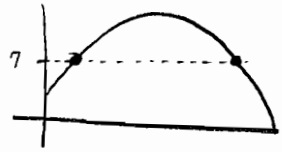
35.



B) $\max = \frac{-b}{2a}$

$= \frac{-1.18}{2(-0.01)}$

$= 59$ ft

C) $7 = -0.01x^2 + 1.18x + 2$

$x \approx 4.4$ ft and 113.6 feet