

MATH 128 EXAM 2 REVIEW ANSWERS --- FALL 2008

Note: Not all problems will have solutions. Professor Cook will do many of them in class.

1. $\frac{1}{4}$

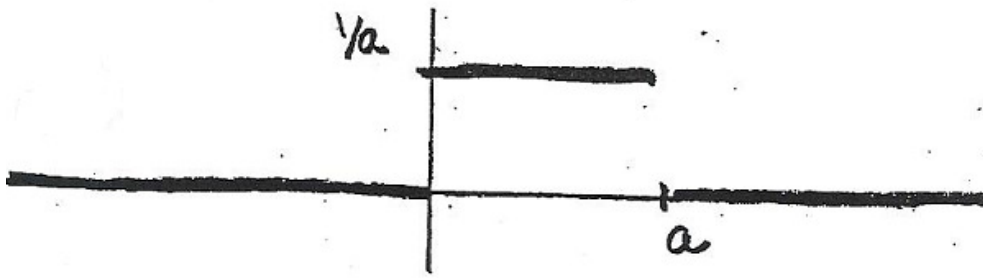
2. $\frac{1}{5}$

3.

4.

5.

6.



7. $\frac{1}{9}$

8. $\frac{1}{15\sqrt{2\pi}} e^{-\frac{(x-50)^2}{450}}$

9.

10. $1 = \int_0^{\infty} k(x+1)^{-5} dx = \frac{k(x+1)^{-4}}{-4} \Big|_0^{\infty} = \frac{k}{-4}(0-1) = \frac{k}{4} \quad \Rightarrow \quad k = 4$

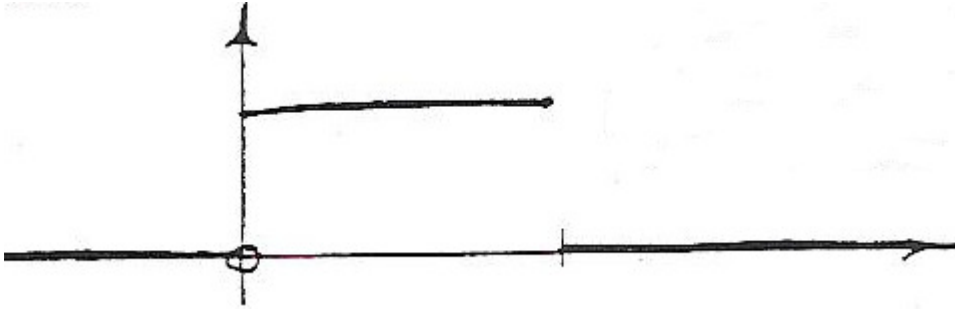
11. $F(x) = \int_0^x 1 - \frac{t}{2} dt = x - \frac{x^2}{4}, \quad 0 \leq x \leq 2$

12. $P(X \leq 1) = \int_0^1 1 - \frac{x}{2} dx = 1 - \frac{1}{4} = \frac{3}{4}$

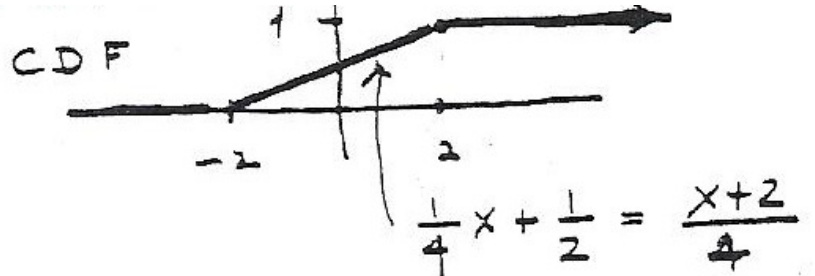
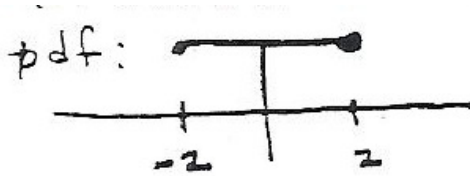
13. $\mu = \int_0^1 x \cdot 3x^2 dx = 3 \cdot \frac{x^4}{4} \Big|_0^1 = \frac{3}{4}$

$$14. F(m) = \frac{1}{2}, \quad m^3 = \frac{1}{2} \Rightarrow m = \sqrt[3]{\frac{1}{2}} \cong 0.79$$

15.



$$16. \frac{1}{4}x + \frac{1}{2} = \frac{x+2}{4}$$



$$17. \mu = \frac{1}{0.67} = 1.5 \Rightarrow \$1,500$$

$$18. z = \frac{x-\mu}{\sigma} : z = \frac{x-800}{150}$$

$$x = 600, a = -1.33$$

$$x = 900, b = 0.67$$

19.

$$20. \mu = \int_0^1 x(2-2x)dx = \dots = \frac{1}{3}$$

21.

22.

- a) normally distributed with mean 0 and standard deviation 2.
- b) exponentially distributed on $0 \leq x \leq 2$.
- c) uniformly distributed on $0 \leq x \leq 2$.
- d) linearly distributed with mean $\frac{1}{2}$.

e) none of these is a correct statement.

23. $\frac{\sqrt{2}}{2}$

24. $\mu = \int_0^1 x \cdot 2x dx = \dots = \frac{2}{3}$

25. e.

26.

- a) $0.20e^{-0.20t}$
- b) $5.0e^{-5.0t}$
- c) $0.693e^{-0.693t}$
- d) $3.47e^{-3.47t}$
- e) $0.139e^{-0.139t}$

27.

- a) $e^{-1.25}$
- b) $e^{0.8} - 1$
- c) $e^{-0.8}$
- d) $1 - e^{-1.25}$
- e) $1 - e^{-0.8}$

28.

- f) -.5, 1.25
- g) -1, .5
- h) .25, .5
- i) -1.5, .25
- j) -.5, .25