

# FRQ set 1

## Part 2

11. In 2009, the z-score for 1% was  $\frac{1 - (-0.198)}{2.331} = 0.514$ . In 2010, the z-score for 1% was

$\frac{1 - (0.078)}{0.821} = 1.123$ . This means that 1% had a higher relative standing in 2010 than in 2009.

(Percentiles for a 1% increase were 69.6% in 2009 and 86.9% in 2010.)

12.  $z = \frac{-1 - (-0.198)}{2.331} = -0.34$ , percentile for  $-0.34$  is .3669. 61 days  $\times$  .3669 = 22.38, or about 22

days. 13. z for 19<sup>th</sup> percentile (from Table A) is  $-0.88$ . So  $-0.88(0.821) + 0.078 = -0.644$  or about a 0.64% decrease. 14. Mean =  $36.5(1.8) + 32 = 97.7$  °F. Standard deviation =  $0.3(1.8) = 0.54$  °F. 15. z for 60<sup>th</sup> percentile is 0.25, and  $0.69 + 0.25(0.16) = 0.73$  ounces.

16.  $z = \frac{1 - 0.69}{0.16} = 1.94$ , which has a proportion of  $1 - 0.9738 = .0262$  letters above it requiring additional postage. 17. The width of this region is 20 seconds, which is one-third the 60-second range of values. Hence the proportion is 0.33. See figure below.



