Answers :

(1) (a) $x = 27 - (2 + 4 + 8 + 1) = 12$

(b) Modal class is $14 \leq t < 18$ (this has maximum number of contestants)

Position of median is $\frac{27+1}{2} = 14$

Therefore median class is $10 \leq t < 14$

(c) Mean time $= \frac{2(3)+4(8)+8(12)+12(16)+1(21)}{27}$

$= \frac{347}{27}$

$= 12.9$ min.

(d) $(height)(class\ width) = (frequency)(k)$

For $0 \leq t < 6$, $(1)(6) = (2)(k)$

$k = 3$

For $10 \leq t < 14$, $(height)(4) = (8)(3)$

$height = 6$

For $14 \leq t < 18$, $(height)(4) = (12)(3)$

$height = 9$

For $18 \leq t < 24$, $(height)(6) = (1)(3)$

$height = 0.5$