FST 6-4 Extra Practice

1) Write as a product of integers.

a) ${}_{10}P_4$

$10 \cdot 9 \cdot 8 \cdot 7 = 5040$

b) ${}_{15}P_9$

$15 \cdot 14 \cdot 13 \cdot 12 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7$

$= 1{,}816{,}214{,}400$

c) ${}_{23}P_6$

$23 \cdot 22 \cdot 21 \cdot 20 \cdot 19 \cdot 18$

$= 72{,}681{,}840$

d) ${}_{72}P_3$

$72 \cdot 71 \cdot 70$

$= 357{,}840$

2) Write as a ratio of 2 factorials $\quad {}_nP_r = \dfrac{n!}{(n-r)!}$

a) ${}_{13}P_7$

$\dfrac{13!}{(13-7)!} = \dfrac{13!}{6!}$

b) ${}_{27}P_{17}$

$\dfrac{27!}{(27-17)!} = \dfrac{27!}{10!}$

3) Evaluate using the formula

a) ${}_5P_2$

$\dfrac{5!}{(5-2)!} = \dfrac{5!}{3!} = \dfrac{5 \cdot 4 \cdot 3 \cdot 2 \cdot 1}{3 \cdot 2 \cdot 1}$

$= 5 \cdot 4$

$= 20$

b) ${}_{10}P_3$

$\dfrac{10!}{(10-3)!} = \dfrac{10!}{7!} = \dfrac{10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1}{7 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1}$

$= 720$

4) Evaluate using calculator $\quad$ MATH → PRB #2

a) ${}_9P_3 = 504$

b) ${}_8P_5 = 6720$