

$$E(X) = \frac{1}{84} [0(32) + 1(26) + 2(12) + 3(7) + 4(4) + 5(2) + 6(1)]$$

$$E(X) = 1.2262$$

$$E(X^2) = \frac{1}{84} [0^2(32) + 1^2(26) + 2^2(12) + 3^2(7) + 4^2(4) + 5^2(2) + 6^2(1)]$$

$$E(X^2) = 3.4167$$

$$V(X) = 3.4167 - 1.2262^2 = 1.9131$$

$$V(X) > E(X)$$

binomial $\rightarrow mq > mq(1-q)$ because $q \leq 1$
 $E(X) > V(X)$

negative binomial $\rightarrow r\beta < r\beta(1+\beta)$ ✓ A
 $E(X) < V(X)$

ALTERNATE SOLUTION

| k | $\frac{k\pi_k}{k\pi_{k-1}}$ |
|---|-----------------------------|
| 0 | - |
| 1 | .81 |
| 2 | .92 |
| 3 | 1.75 |
| 4 | 2.29 |
| 5 | 2.5 |
| 6 | 3 |

increasing