

| X | g(x) = X^2 | a=6.25 | f(x) | g(x)f(x) | af(x) |
|------|------------|--------|------|----------|-------|
| 0 | 0 | 6.25 | 0.2 | 0 | 1.25 |
| 0.25 | 0.0625 | 6.25 | 0.2 | 0.0125 | 1.25 |
| 0.5 | 0.25 | 6.25 | 0.2 | 0.05 | 1.25 |
| 0.75 | 0.5625 | 6.25 | 0.2 | 0.1125 | 1.25 |
| 1 | 1 | 6.25 | 0.2 | 0.2 | 1.25 |
| 1.25 | 1.5625 | 6.25 | 0.2 | 0.3125 | 1.25 |
| 1.5 | 2.25 | 6.25 | 0.2 | 0.45 | 1.25 |
| 1.75 | 3.0625 | 6.25 | 0.2 | 0.6125 | 1.25 |
| 2 | 4 | 6.25 | 0.2 | 0.8 | 1.25 |
| 2.25 | 5.0625 | 6.25 | 0.2 | 1.0125 | 1.25 |
| 2.5 | 6.25 | 6.25 | 0.2 | 1.25 | 1.25 |
| 2.75 | 7.5625 | 6.25 | 0.2 | 1.5125 | 1.25 |
| 3 | 9 | 6.25 | 0.2 | 1.8 | 1.25 |
| 3.25 | 10.5625 | 6.25 | 0.2 | 2.1125 | 1.25 |
| 3.5 | 12.25 | 6.25 | 0.2 | 2.45 | 1.25 |
| 3.75 | 14.0625 | 6.25 | 0.2 | 2.8125 | 1.25 |
| 4 | 16 | 6.25 | 0.2 | 3.2 | 1.25 |
| 4.25 | 18.0625 | 6.25 | 0.2 | 3.6125 | 1.25 |
| 4.5 | 20.25 | 6.25 | 0.2 | 4.05 | 1.25 |
| 4.75 | 22.5625 | 6.25 | 0.2 | 4.5125 | 1.25 |
| 5 | 25 | 6.25 | 0.2 | 5 | 1.25 |

Markov's Inequality:

$$a P(g(x) \geq a) \leq E(g(x))$$

$$\int_{x^2 \geq a} a f(x) dx \leq \int_0^5 x^2 f(x) dx$$

$$f(x) = .2 I_{[0,5]}(x)$$

