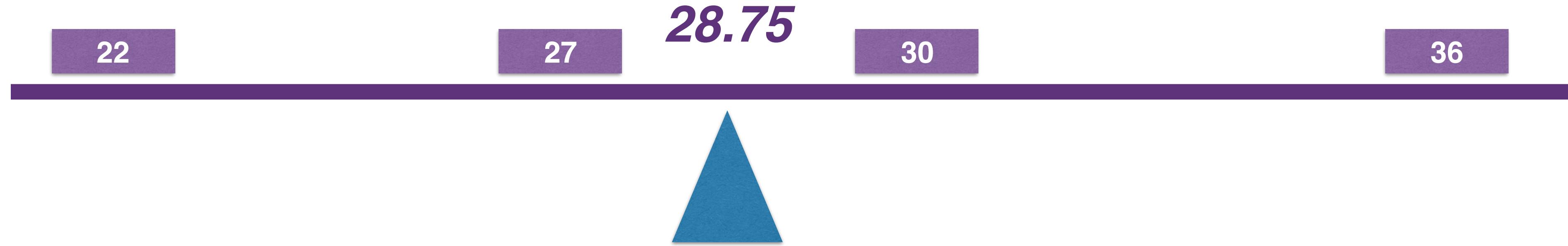


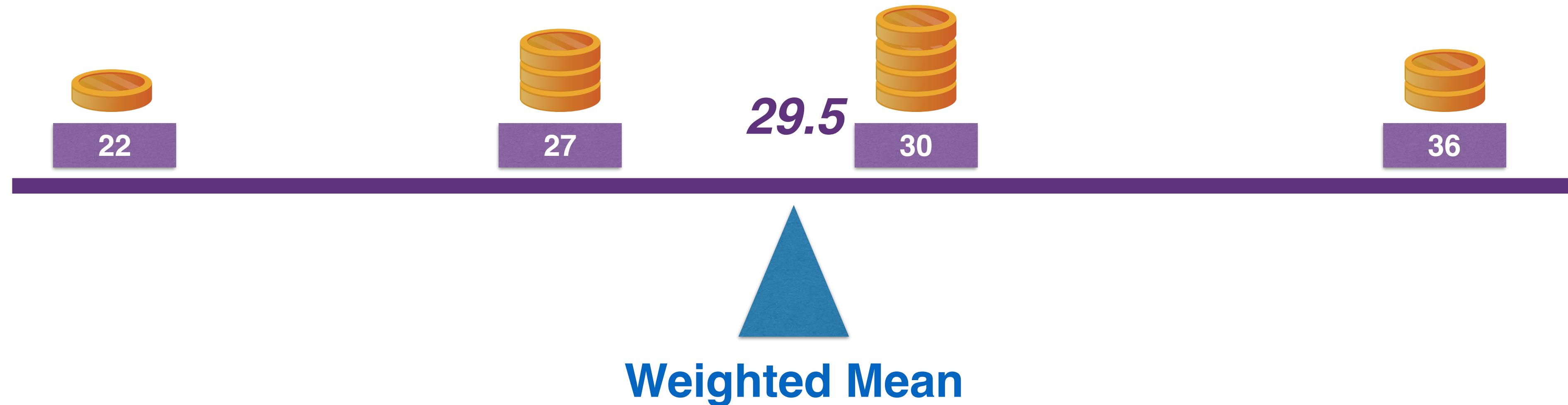
Probability Concepts

Expected Values and Variance

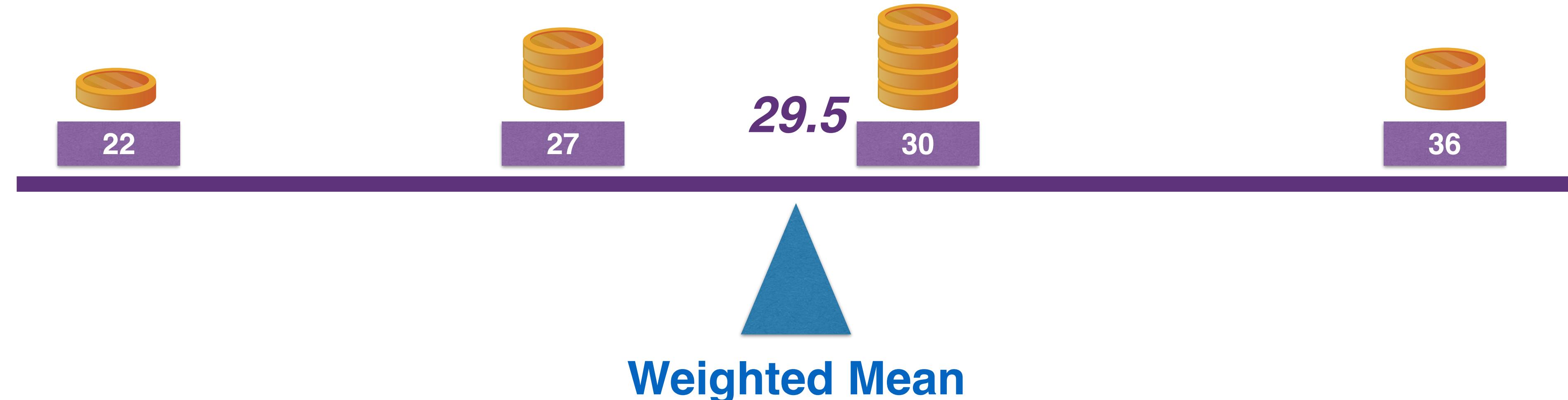
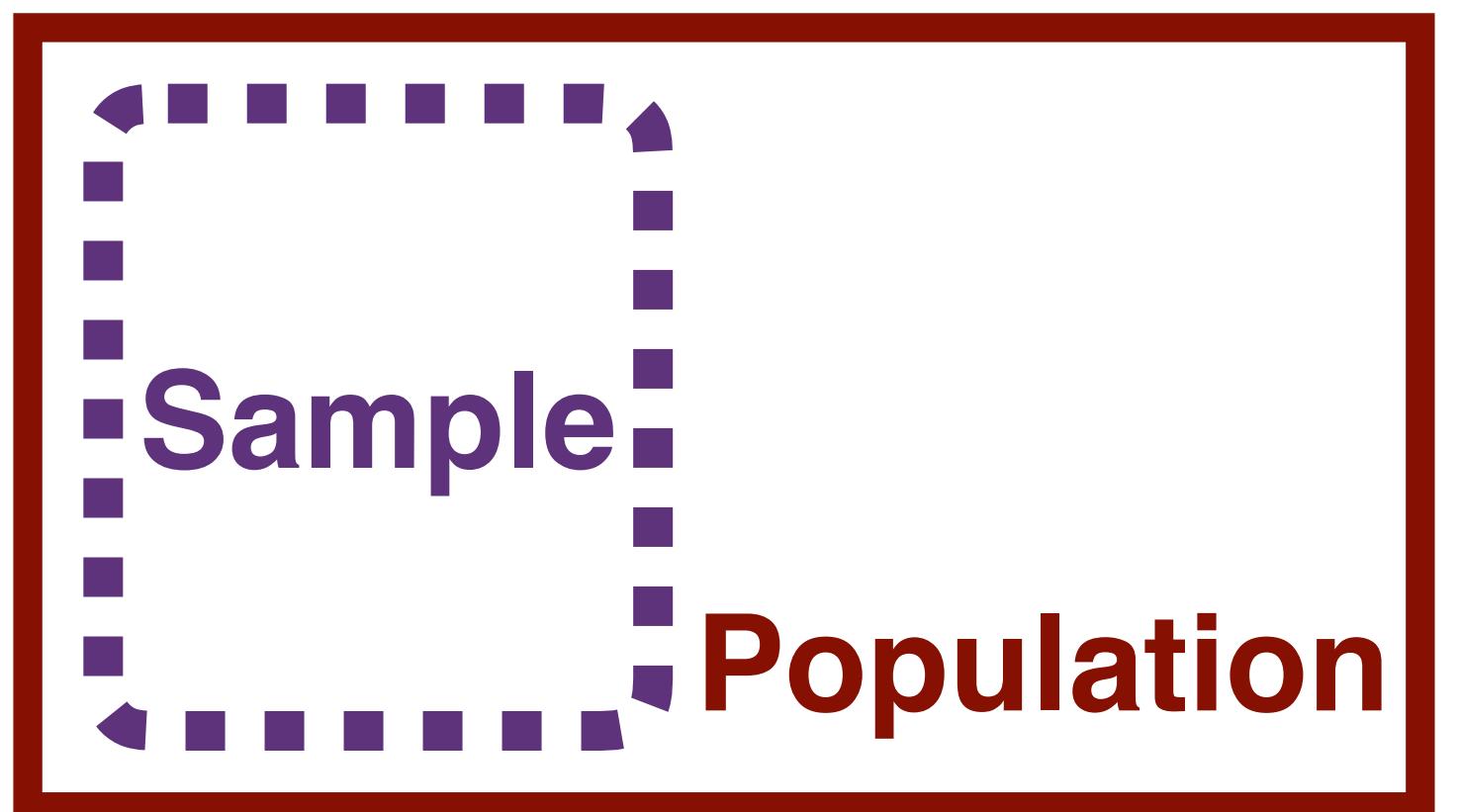
Arithmetic mean



Weight	EPS (\$)
0.2	36
0.4	30
0.3	27
0.1	22



Expected Value



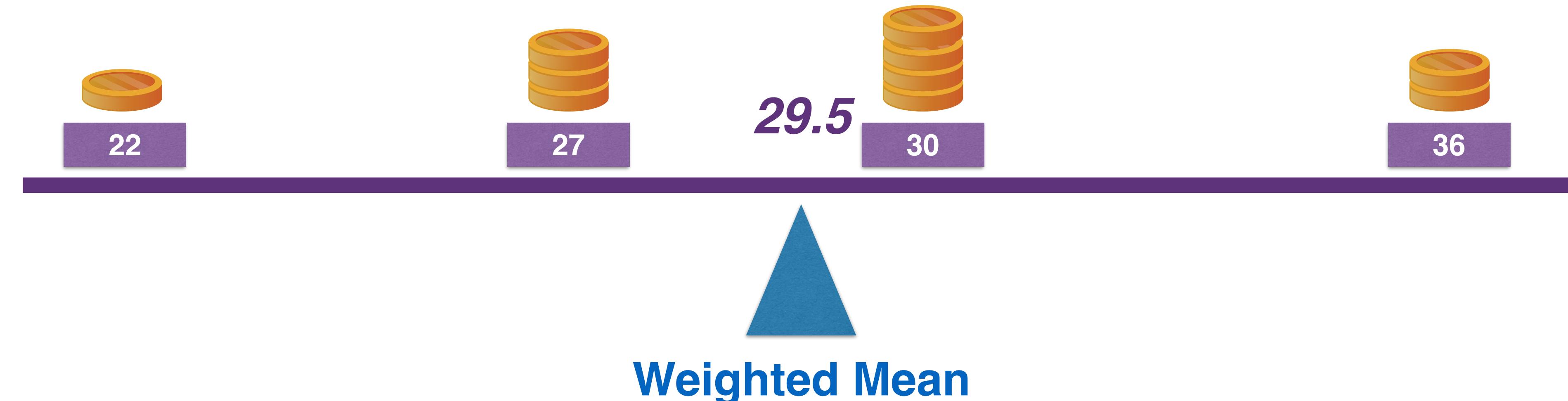
Expected Values and Variance

Mean Historical

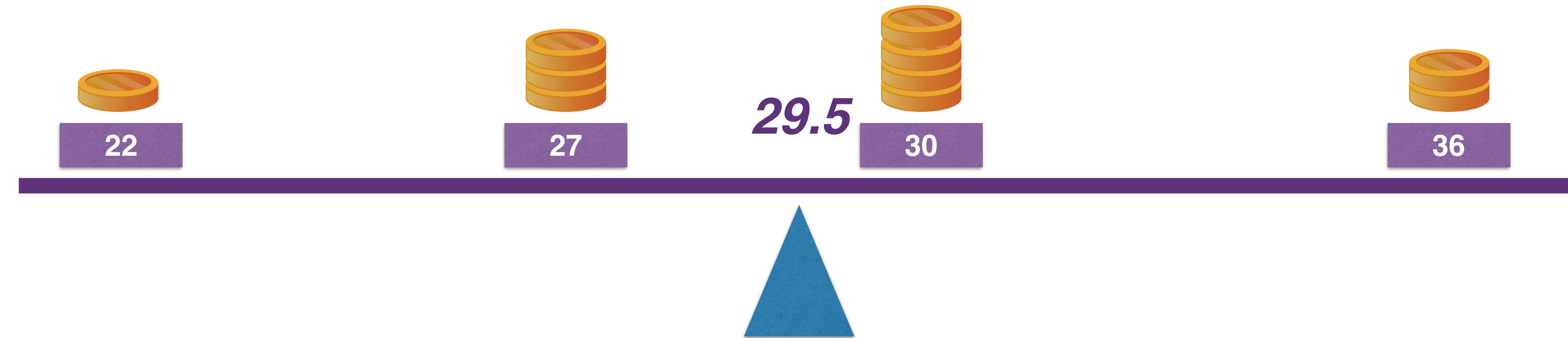


VS

Expected Value Forecast



Expected Value



Expected Values and Variance

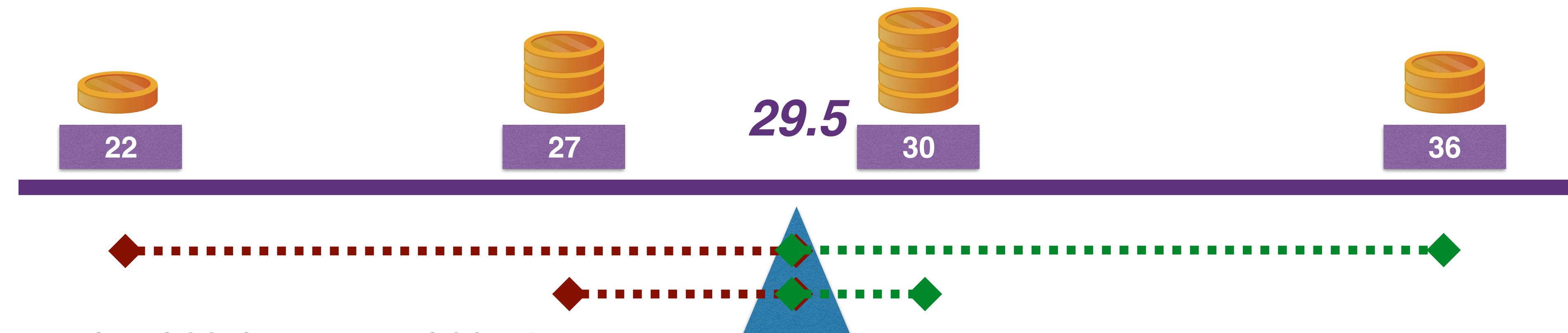
Expected Value

$$E(X) = \sum P(X_i) X_i$$

P(X _i)	X _i : EPS (\$)	P(X _i) X _i	P(X _i) [X _i -E(X)] ²
0.2	36	7.2	8.45
0.4	30	12	0.1
0.3	27	8.1	1.875
0.1	22	2.2	5.625

$$\Sigma = 29.5$$

$$\Sigma = 16.05$$



Expected Values and Variance

As an analyst, you have worked out the probabilities and EPS of Pineapple Inc as shown. Calculate the expected EPS and the standard deviation of EPS.

Prob	EPS (\$)
0.2	1.65
0.5	1.3
0.3	1.15

$$\begin{aligned} E(\text{EPS}) &= 0.2 \times 1.65 + 0.5 \times 1.3 + 0.3 \times 1.15 \\ &= \$1.325 \end{aligned}$$

$$\begin{aligned} \sigma^2_{\text{EPS}} &= 0.2 \times (1.65 - 1.325)^2 + 0.5 \times (1.3 - 1.325)^2 + 0.3 \times (1.15 - 1.325)^2 \\ &= 0.030625 \end{aligned}$$

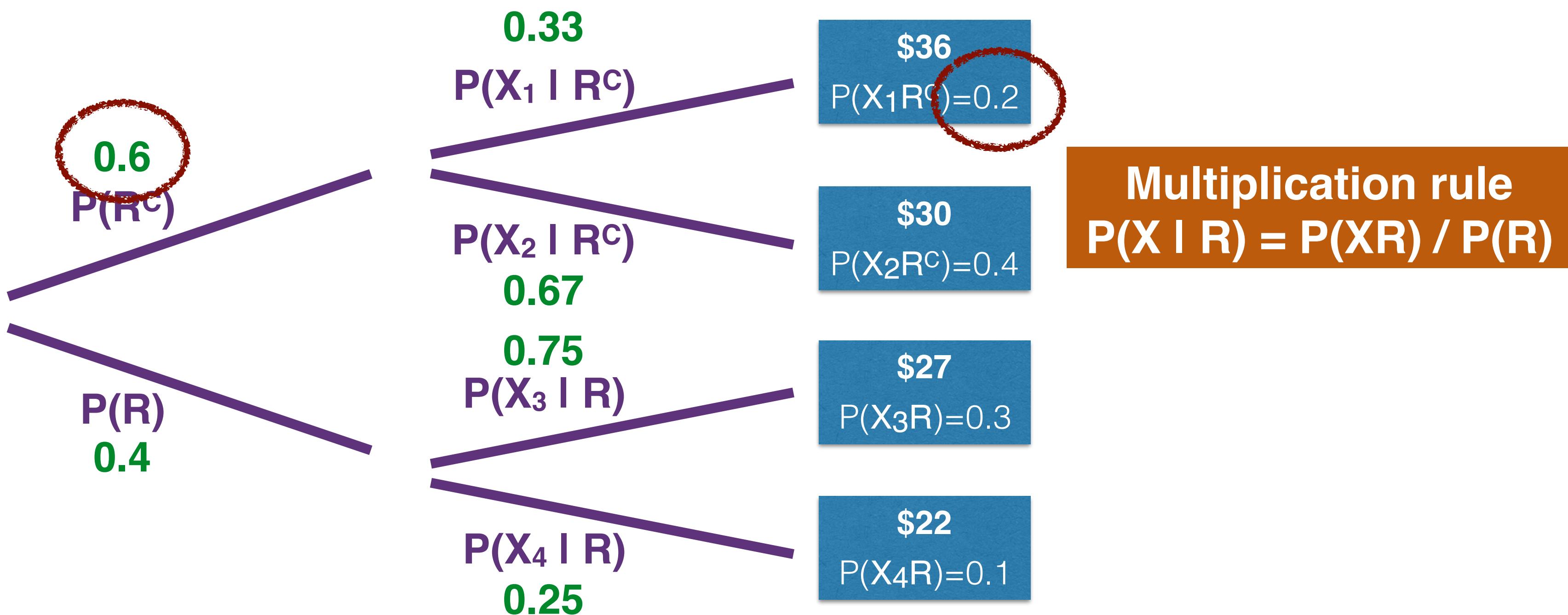
$$\sigma_{\text{EPS}} = 0.030625^{1/2} = \$0.175$$

Expected Value

$$E(X) = \sum P(X_i) X_i$$

$$E(X | S) = \sum P(X_i | S) X_i$$

	$P(X_i)$	$X_i: \text{EPS } (\$)$
No Recession (R^C)	0.2	36
	0.4	30
Recession (R)	0.3	27
	0.1	22



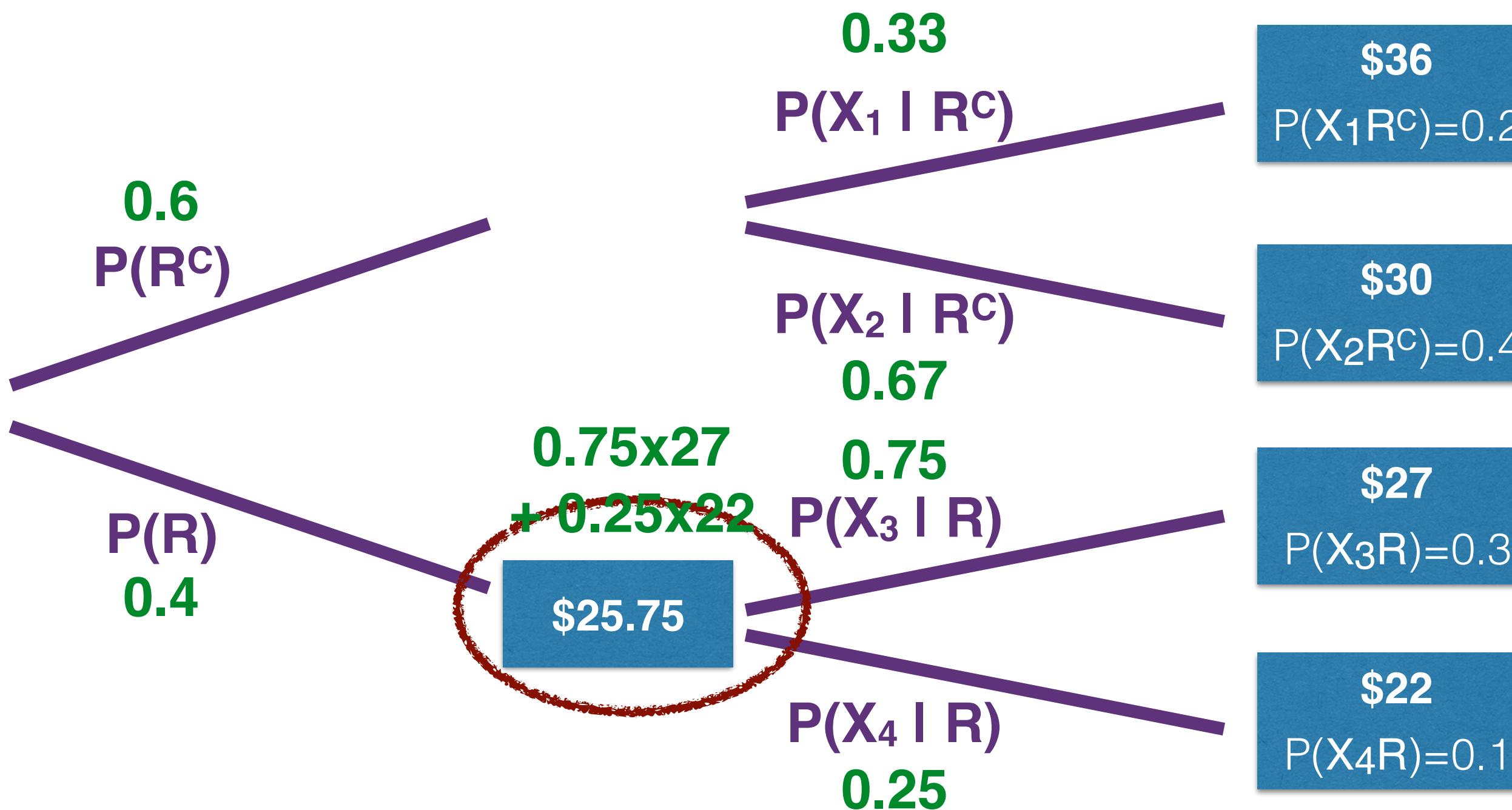
Expected Values and Variance

Expected Value

$$E(X) = \sum P(X_i) X_i$$

$$E(X | S) = \sum P(X_i | S) X_i$$

	$P(X_i)$	$X_i: \text{EPS } (\$)$
No Recession (R^C)	0.2	36
	0.4	30
Recession (R)	0.3	27
	0.1	22



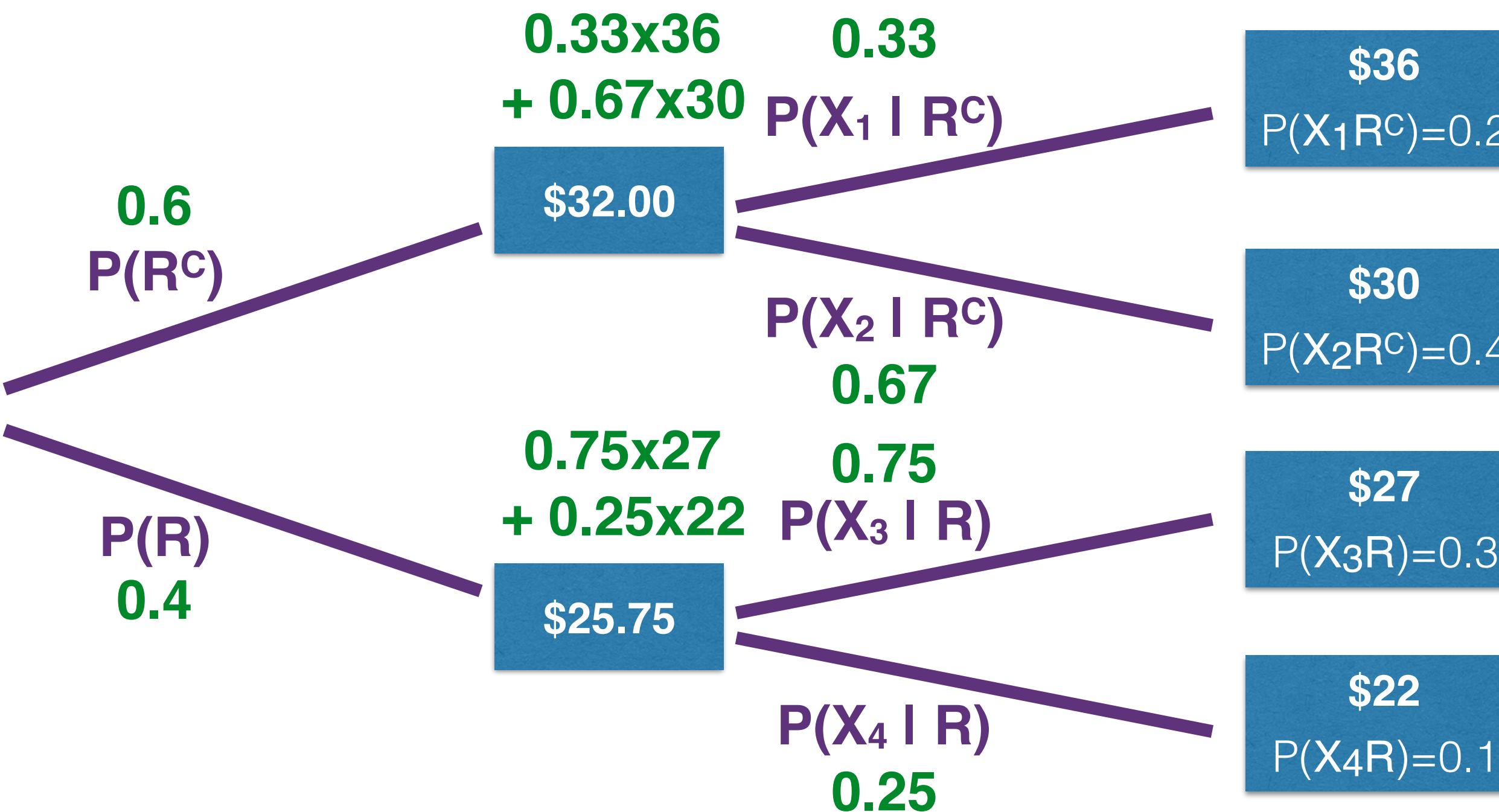
Expected Values and Variance

Expected Value

$$E(X) = \sum P(X_i) X_i$$

$$E(X | S) = \sum P(X_i | S) X_i$$

	$P(X_i)$	$X_i: \text{EPS } (\$)$
No Recession (R^C)	0.2	36
	0.4	30
Recession (R)	0.3	27
	0.1	22



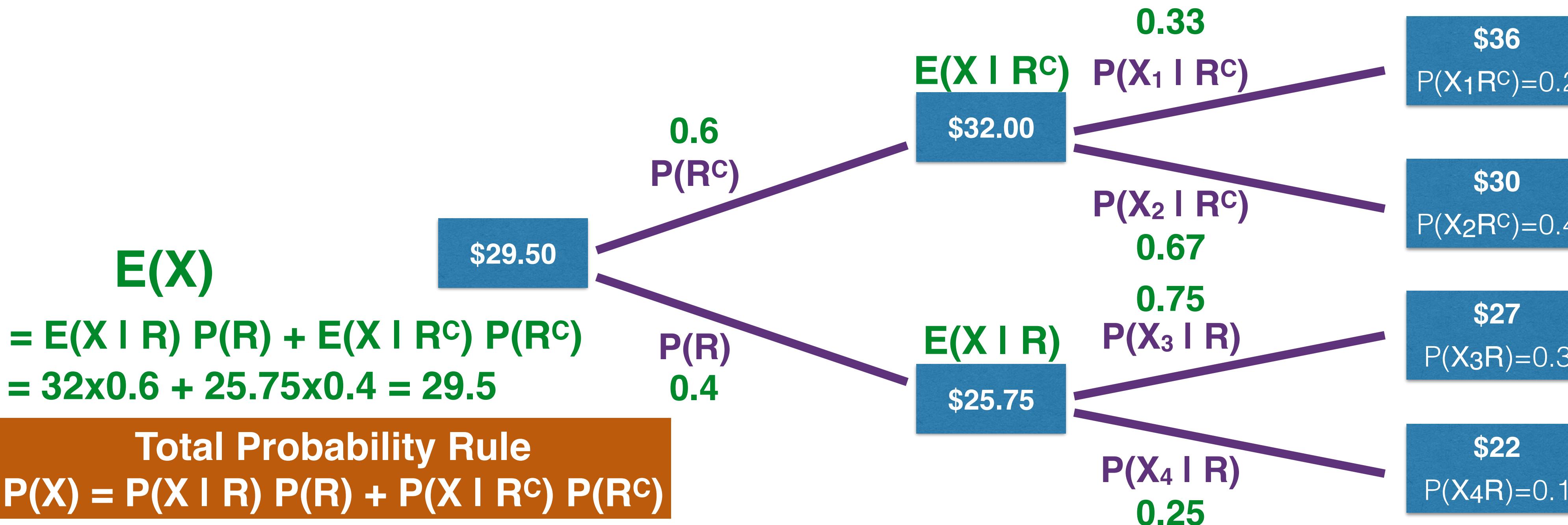
Expected Values and Variance

Expected Value

$$E(X) = \sum P(X_i) X_i$$

$$E(X | S) = \sum P(X_i | S) X_i$$

	$P(X_i)$	$X_i: \text{EPS } (\$)$
No Recession (R^C)	0.2	36
	0.4	30
Recession (R)	0.3	27
	0.1	22



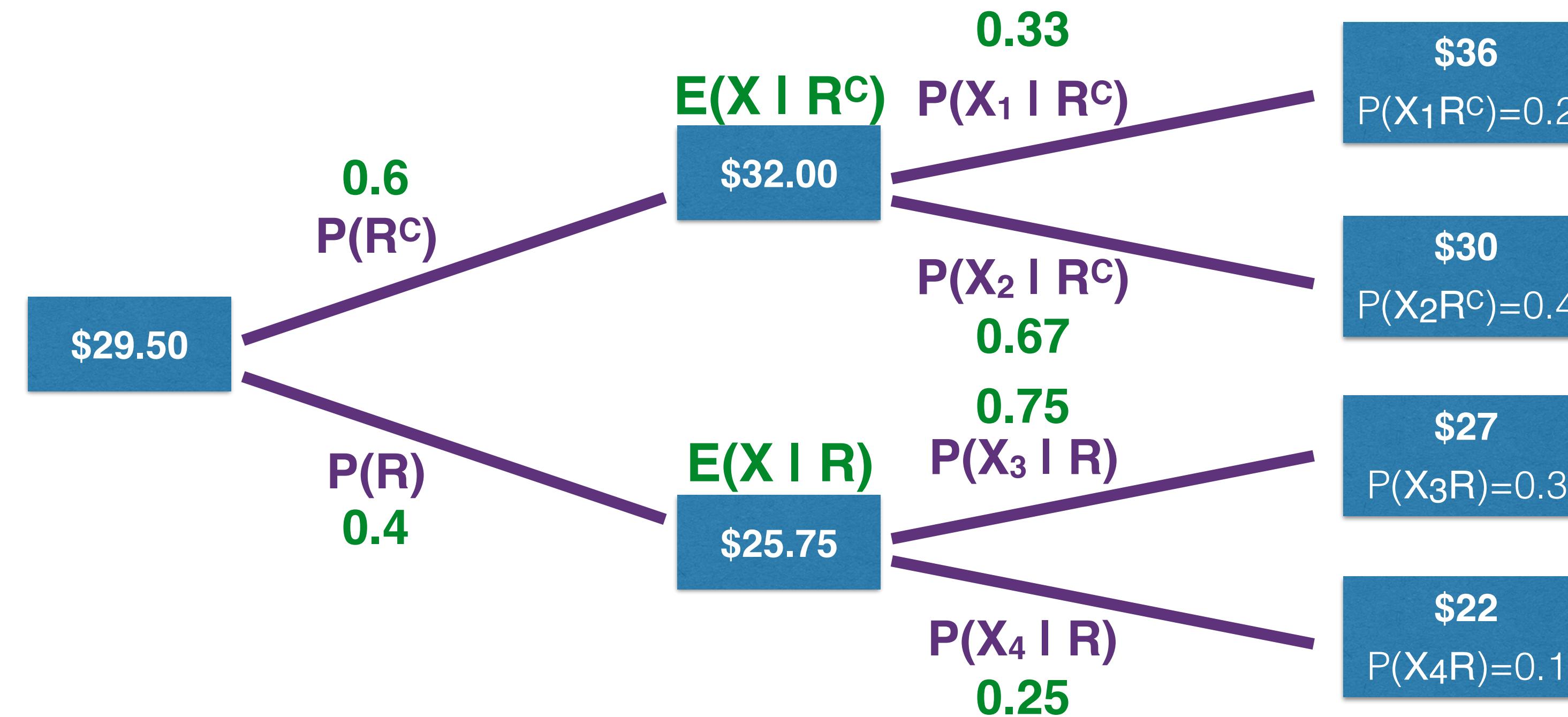
Expected Value

$$E(X) = \sum P(X_i) X_i$$

$$E(X | S) = \sum P(X_i | S) X_i$$

$$E(X) = E(X | R) P(R) + E(X | R^c) P(R^c)$$

	$P(X_i)$	$X_i: \text{EPS } (\$)$
No Recession (R^c)	0.2	36
	0.4	30
Recession (R)	0.3	27
	0.1	22





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