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CS245 Exam 3

1) $11 \times 12 = 132$

| Black | Red | Total | $\frac{3}{8} \times \frac{2}{7} = \frac{3}{28}$ |
|-------|-----|-------|---|
| 3 | 5 | 8 | |

5 vowels, 21 consonants, 26 total

5 length string 5

5 vowels 1 0 cons

4 vowels 2 1 cons 5 ways, 5 vowels, 21 cons

3 2 cons

$$5 \times 21^4 = 4862025$$

2 3 cons

1 vowel 4 4 cons

2) Assume $1^3 = [1(1+1) | 2]^2$

$$1 = [2 | 2]^2$$

$$1 = 1^2$$

$$1 = 1 \checkmark$$

~~36/20 only diff~~

$$(1+x^3) = 8 \times (1+x) \left(\frac{1}{2}\right)^2$$
$$1+x^3 = (x^2+x+1) \left(\frac{1}{2}\right)^2$$
$$1+x^3 = \frac{(x^2+x+1)^2}{2}$$
$$\sqrt{1+x^3} = \frac{x^2+x+1}{\sqrt{2}}$$
$$2\sqrt{1+x^3} = x^2+x+1$$

3. $a \rightarrow i$

$$a \xrightarrow{9} b \xrightarrow{6} c \xrightarrow{25} f \xrightarrow{13} h \xrightarrow{4} i = 57 \text{ distance}$$

4.)