

MAAB26 Assignment 8

[EG] 5.78

- (a) At each of the 8 positions in the string we either have a 0 or a 1, so the answer is

$$2^8 = \underline{\underline{256}}$$

- (b) There are $\binom{8}{2}$ ways of choosing the two positions for the 1s, then just one way of filling in the remaining positions with 0s. This gives the answer

$$\binom{8}{2} \cdot 1 = \frac{8 \cdot 7}{2} = \underline{\underline{28}}$$

(c) $\binom{8}{0} + \binom{8}{2} + \binom{8}{4} + \binom{8}{6} + \binom{8}{8} = \underline{\underline{188}}$

[EG 5.91 (a)]

You need 1 jack (knekt) and 12 cards which are neither picture-cards nor aces

So answer is $\binom{4}{1} \cdot \binom{36}{12} = \underline{\underline{4 \cdot \binom{36}{12}}}$

[EG 6.91]

- (a) $ababef$ is a walk from a to f which has a repeated edge, so it is not a trail.
(b) $abcebd$ is a trail from a to f which has a repeated vertex, so it is not a path.
(c) $abdf$ is a path.
(d) $ababca$ is a closed walk from a to a which has repeated edge, so it is not a circuit.
(e) $abdebca$ is a circuit which has a repeated vertex (b), so it is not a cycle.
(f) $abca$ is a cycle.

Note, the answers to 6.91 are not unique