

## Worksheet 1

1

$$d = 100$$

2

$$\sqrt{d}$$

3

$$||x|| = \sqrt{(3 - 1)^2 + (2 - 2)^2 + (1 - 3)^2} = 2\sqrt{2}$$

4

$$||x|| = \sqrt{d((-1) - 1)^2} = 2\sqrt{d}$$

5

(a)

$$\begin{aligned} &P_r(\text{pick } A)P_r(\text{not } A) + P_r(\text{pick } B)P_r(\text{not } B) + P_r(\text{pick } C)P_r(\text{not } C) + P_r(\text{pick } D)P_r(\text{not } D) \\ &= \frac{1}{4} \times 0.5 + \frac{1}{4} \times 0.8 + \frac{1}{4} \times 0.8 + \frac{1}{4} \times 0.9 \\ &= \frac{3}{4} \end{aligned}$$

(b)

$$\begin{aligned} &A \\ &50\% \end{aligned}$$

6

(a)

$$2$$

(b)

$$2$$

(c)

$$1$$

(d)

$$3$$

(e)

$$50\%$$

8

(a)

*star*

(b)

*square*

(c)

*square*

9

7500

10

50%

25%