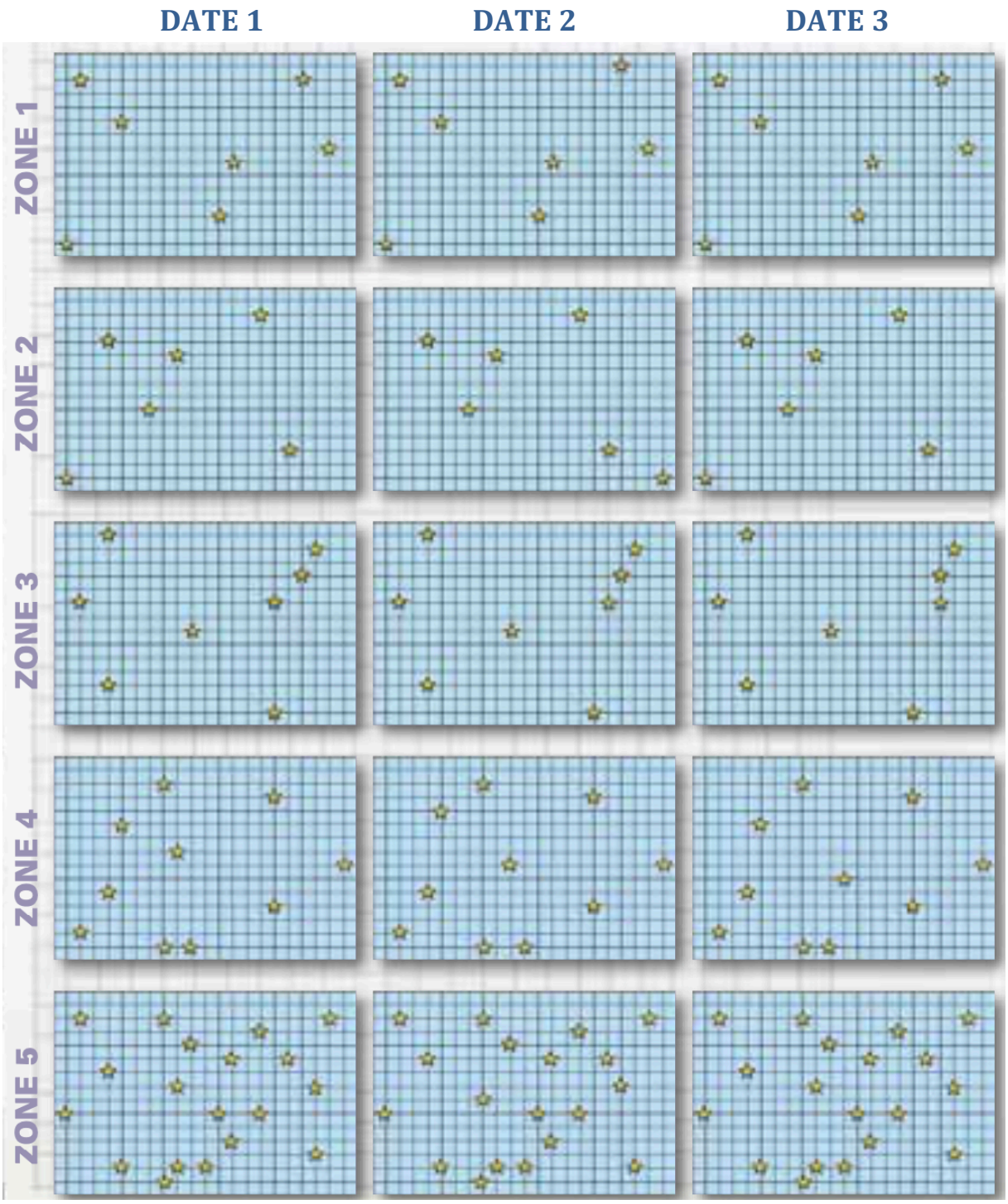
Detection of an exoplanet by star movement – Appendix – star fields



Detection of an exoplanet by star movement – Solution

Part 1 – seeking balance

The first observations will be:

- When both packets are identical, the noose is right in the middle.
- When the packets are different, the noose must be closer to the heaviest one.
- When a packet is X times heavier than the other, then the noose is also X times closer to the heaviest one.
- When the system revolves, the lightest packet moves much more than the heaviest one.

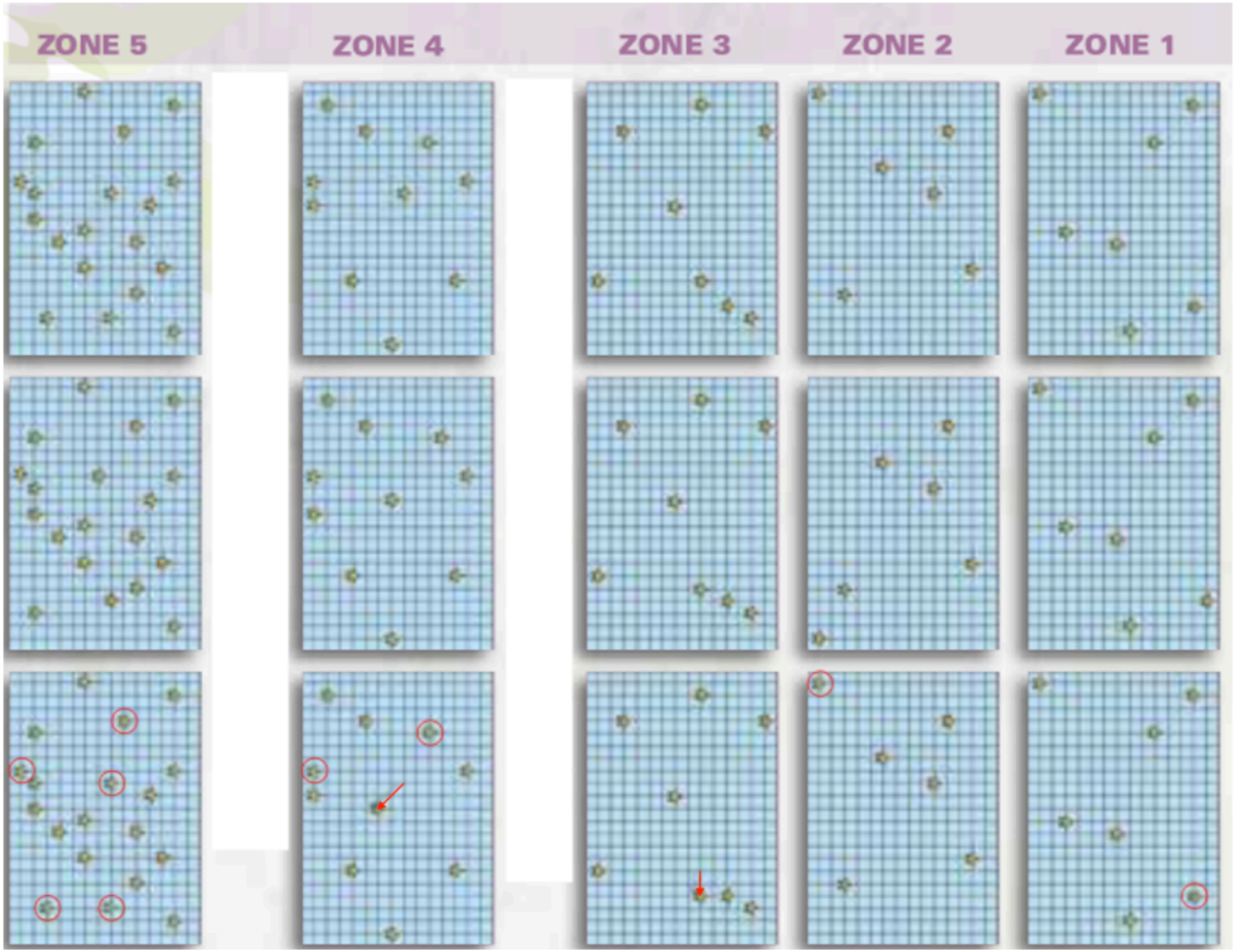
Weight A	Weight B	xA	xB
100 g	100 g	25 cm	25 cm
250 g	250 g	25 cm	25 cm
250 g	100 g	14 cm	36 cm
500 g	500 g	25 cm	25 cm
500 g	250 g	17 cm	33 cm
500 g	100 g	8 cm	42 cm
1 kg	1 kg	25 cm	25 cm
1 kg	500 g	17 cm	33 cm
1 kg	250 g	10 cm	40 cm
1 kg	100 g	5 cm	45 cm

Part 2 – finding invisible planets

In each field, the stars circled in red are swinging: this indicates that they have planets around them.

The fields #3 and #4, some stars move in a straight line (indicated by a red arrow). They probably don't have planets.

All the other stars probably don't have planets either.


ZONE 5
ZONE 4
ZONE 3
ZONE 2
ZONE 1