Graphing & $y = mx + b$

1) A farmer sells carrots at a weekend market. Higher prices reduce the number of bunches sold, but weather, crowds, and tourist traffic introduce weekly randomness.

Price ($/bunch)	Bunches Sold
2.00	225
2.50	210
3.00	193
3.50	177
4.00	158
4.50	148
5.00	135
5.50	125
6.00	118
6.50	106

a) **Plot the data** on a graph & draw a line of best fit.

b) Identify the **y-intercept** of your line and identify the **rise and run. Calculate the** slope m $= \frac{\text{rise}}{\text{run}}$

c) Write your **equation of the line of best fit in slope-intercept form**: $y = mx + b$

d) If carrots are priced at $4.25 per bunch, estimate how many bunches will be sold.

e) If the farmer sold 150 bunches, estimate the carrot price.

2) A laundromat records how many laundry loads are completed each day vs. hours they keep their shop open. Days with late openings, machine repairs, and neighbourhood events introduce deviations.

Hours Open	Loads Completed
5	80
6	94
7	103
8	118
9	127
10	139
11	146
12	160
13	167
14	177

a) **Plot the data** on a graph & draw a line of best fit.

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d) If the laundromat stays open for 12 hours, estimate how many laundry loads will be completed.

e) If the laundromat completed 135 loads, estimate how many hours it was open.

3) A beach shack sells ice-cream cones during the summer. Higher temperatures draw more people to the beach, but wind, clouds, and early closures create variation.

Temp (°C)	Cones Sold
18	93
20	112
22	131
24	148
25	159
26	171
27	183
28	194
29	205
30	219

a) **Plot the data** on a graph & draw a line of best fit.

b) Identify the **y-intercept** of your line and identify the **rise and run. Calculate the** slope $\mathrm{m} = \frac{\text{rise}}{\text{run}}$

c) Write your **equation of the line of best fit in slope-intercept form**: $y = mx + b$

d) If the temperature reaches 26°C, estimate how many cones will be sold.

e) If the shack sold 180 cones, estimate the temperature that day.

4) A bus driver logs how much fuel is used each day vs. driving distance. Heavy traffic, hills, and idling create noisy but linear-ish variation.

Distance (km)	Fuel Used (L)
10	8.0
15	11.2
20	14.5
25	17.0
30	19.7
35	22.3
40	24.2
45	26.5
50	28.3
55	30.8

a) **Plot the data** on a graph & draw a line of best fit.

b) Identify the **y-intercept** of your line and identify the **rise and run. Calculate the** slope $\mathrm{m} = \frac{\text{rise}}{\text{run}}$

c) Write your **equation of the line of best fit in slope-intercept form**: $y = mx + b$

d) If the bus drives 42 km, estimate fuel used.

e) If the bus used 25 litres of fuel, estimate how many km were driven.