Assignment 4

Section A

25/28 = 89%

Terrific work, Rachel! Just a few to check.
Regards, Kris

Q1) 1 : X

8.6cm : 21.5m

8.6cm : 2150cm ✓ (1m = 100cm)

$x = \frac{2150}{8.6}$ ✓

2

$x = 250$

∴ 1 : 250 ✓

Q2) 1 : 100

100 = 8.7m

8.7m = 870cm

2

$1 = \frac{870}{100}$ ✓

1 = 8.7cm ✓

Q3)

a) Left trapezium

$A = \frac{h}{2}(d_1 + d_2)$

$A = \frac{125}{2}(240 + 190)$ ✓

$A = 26,875m^2$ ✓

Q3) (Continued)

a) Centre trapezium

$$A = \frac{h}{2}(d_f + d_l)$$

$$A = \frac{125}{2}(190 + 210) \checkmark$$

$$A = 25{,}000\ m^2 \checkmark$$

Right trapezium

$$A = \frac{h}{2}(d_f + d_l)$$

$$A = \frac{125}{2}(210 + 116)$$

Excellent work, Rachel!

$$A = 20{,}375\ m^2 \checkmark$$

Total area $= 26{,}875 + 25{,}000 + 20{,}375$

$= 72{,}250\ m^2 \checkmark$

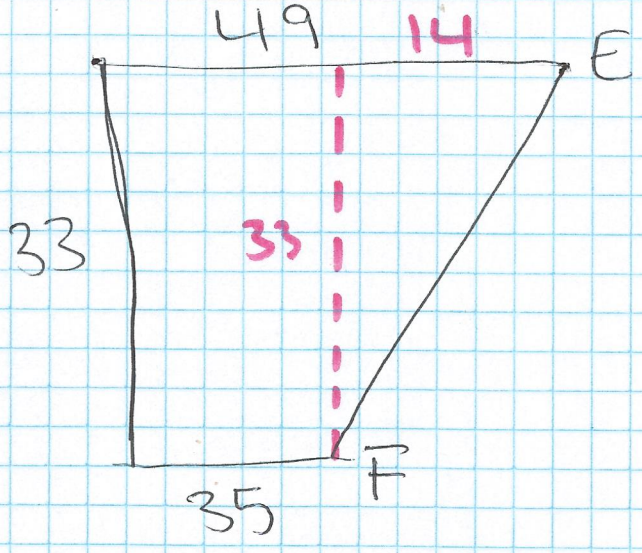
b) $V = Ah$

$V = 72{,}250 \times 1.8 \checkmark$

$= 130{,}050\ m^3 \checkmark$

3

Q24)



$49 - 35 = 14$ ✓

$c^2 = a^2 + b^2$

$c^2 = 33^2 + 14^2$ ✓

$c^2 = 1089 + 196$

$c^2 = 1285$

2

Nice setting out.

$c = \sqrt{1285}$ ✓

$c = 35.84689666$

$c = 36$ ✓

∴ The length of EF is 36m

Q25)

a) Angles at a point add to 360°

$360 - 285 = 75°$ ✓

$\theta + 48 = 48°$

$\angle POR = 75 + 48$ ✓

∴ $\angle POR = 123°$

Q5) (Continued)

b) $c^2 = a^2 + b^2 - 2ab\cos C$ ✓

$c^2 = 7.1^2 + 5.4^2 - 2 \times 7.1 \times 5.4 \times \cos 123^\circ$

$c^2 = 121.33292 12$

$c = \sqrt{121.33292 12}$ ✓

$c = 11.01512239$ ✓

$\therefore PR = 11.01$ km

c) $A = \frac{1}{2}ab\sin C$

$A = \frac{1}{2} \times 7.1 \times 5.4 \times \sin 123^\circ$ ✓

$A = 16.07731479$ ✓

$\therefore$ Area of ΔPQR is $16 km^2$

5

Section B

Q1)

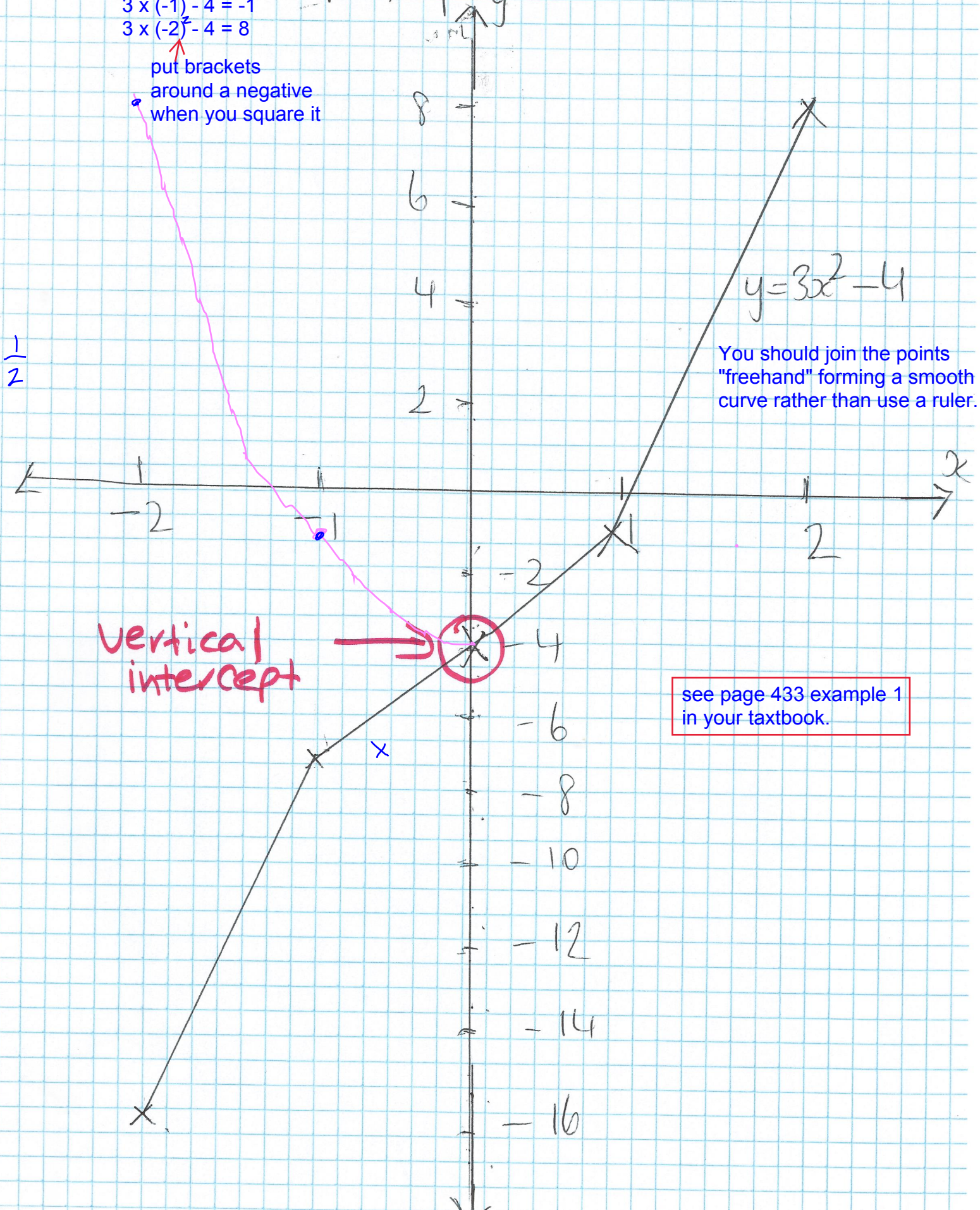
x	-2	-1	0	1	2
y	-16	-7	-4	-1	8

8 × -1 ×

$3 \times (-1)^2 - 4 = -1$

$3 \times (-2)^2 - 4 = 8$

put brackets around a negative when you square it



You should join the points "freehand" forming a smooth curve rather than use a ruler.

see page 433 example 1 in your taxtbook.

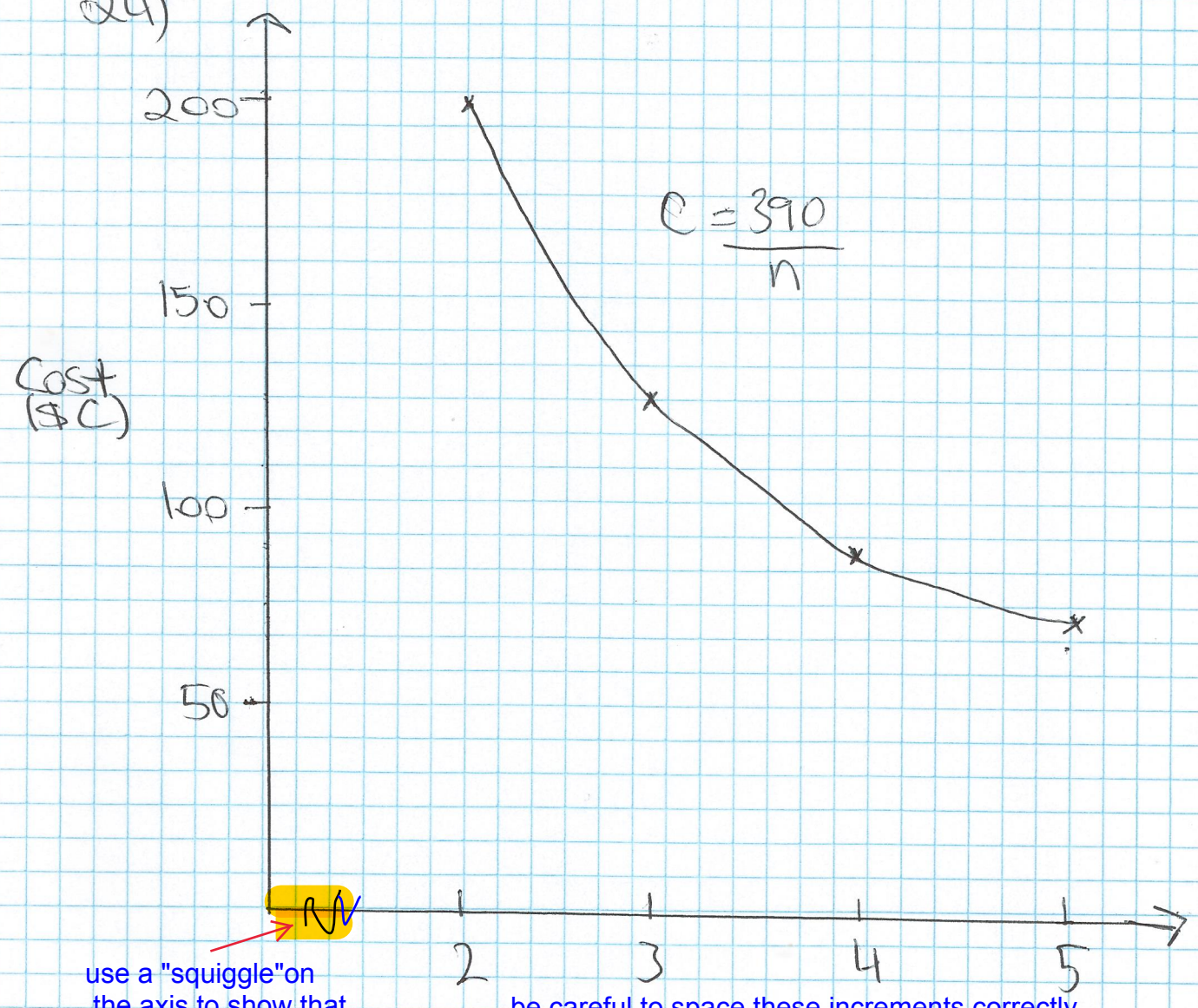
Q22) A ✗ D (a parabola)

see page 434 example 2 in your taxtbook.

½

Q23) C ✓

Q24)



use a "squiggle" on the axis to show that you haven't started at (0,0)

be careful to space these increments correctly

$C = \frac{390}{n}$

2

n	2	3	4	5
$C	195	130	97.50	78

✓

Q5)

a) $D = \frac{k}{b}$ ✓

b) $D = \frac{k}{b}$

$\$24\,120 = \frac{k}{24} \times 24$ ✓

$k = 120 \times 24$

$k = 2880$ ✓

c) $D = \frac{k}{b}$

$D = \frac{2880}{14}$ ✓

$D = 205.714285\,7$

$D = 206$ days ✓

d) $D = \frac{k}{b}$

$45^{+b} = \frac{2880}{b} \times b$ ✓

$\frac{45b}{45} = \frac{2880}{45}$

Great!

Q5)

d) (Continued)

$$b = \frac{2880}{45}$$ ✓

$$= 64$$ ✓

∴ 64 builders are needed to complete the project in 45 days.

Q6)

a) Direct variation ✗ Exponential function

b)

i) $B = 100(2)^t$

$B = 100(2)^0$ ✓

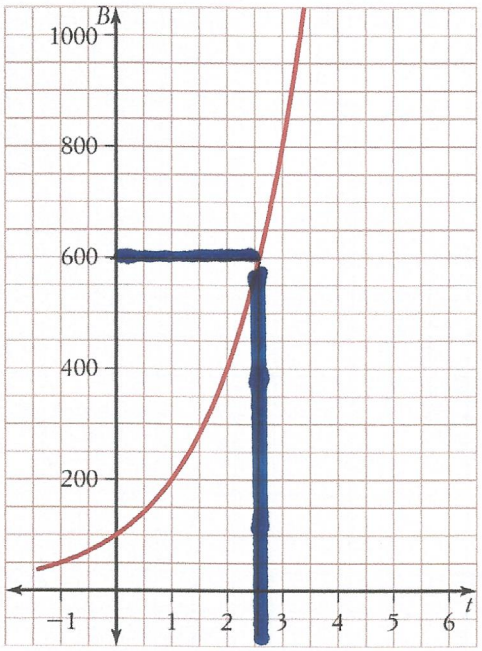
$B = 100$ ✓

ii) $B = 100(2)^t$

$B = 100(2)^5$ ✓

$B = 3200$ ✓

c) The graph of the function $B = 100(2)^t$ is shown below.



Use the graph to determine how long after cooking there are 600 bacteria on the hamburger.

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Q6) (continued)

c) From the graph there are 600 bacteria on the hamburger 2.5 ✓ hours after cooking.