Booklet 4 answers to posed questions

Page 2: Ex 1 a. concrete and abstract b. concrete c. abstract d. concrete e. abstract f. abstract g. concrete h. abstract i. abstract j. concrete and abstract k. abstract
Ex 2 a. both b. whole only c. both d. whole only (you can't buy half a roll) e. whole

page 3: exercise 1a I all campers are the whole; b II camper per campsite ; c. III since base is the population of Ontario; d. II portion of all visitors; e. II per individual second 😊

Page 4: 1a I; 60% of campers are hungry b II; 9.8 campers per campsite c. III; 69055.6 teens per 100,000 population (or approximately 69% of citizens are teens if you feel strongly that is is type I) d. II; 91.2 km per hr e. II; 28,773 citizens per doctor f. I; 97.65% of beds are occupied g. III; 219.13 existing cases per 100,000 h. III; 0.0083 new cases per 100,000 population

Page 5: 1 84.09% 2. 53 marks would do it 3. 45 4. 23+(42/77)*50=50.27 i.e. below 60. 5. You need to get 23/40 to get a 60 (i.e. 57.5%) out of 83 that is 47.73… or 48 marks. 6. You need 12 more marks out of 40 (or 30%) on the final exam which translates to 21 out of 70. 7a. 26.87 marks earned. 7b approximately 62. 7c yes.. by a bit

Page 6 : 1. 21.99 or 22 newborns had an infection. 2. 701,192.961 3a. 96.05% occupancy rate means 3.95% of beds are free – i.e. 37 beds are unoccupied. 3b initial occupancy was 900 beds. (-7 + 5 = -2) i.e. new occupancy is 898 or 95.84% 4. 432/444=97.3% 5. 883 beds are occupied. 6.

Page 7: 1. 459.45; 2. 57.75 3.1296.44 4. 2.55 5. Coat 1 is cheaper by $3.00

Page 8 1a. 32cm taller b. 22.07% c. 18.08% shorter… calculate difference 'of Joe's height'.
2a. 12.15% drop b. need to rise by 13.83%. 3a 32.47% drop b. 48.08% rise needed.

Page 10. 1. Test 2 is higher score, so choosing that one is better (69.57% vs 67.16%) 2. Team2 higher 3. Drug A: 82/145 = 56.55% success rate; Drug B: 100/277=36.1% success rate. Drug A is higher success rate for sure… but choosing it as a clear winner for more effective would depend on other factors (like side effects for example). 4. Hospital A is 2.7% higher occupancy, both are pretty close to 100% so the difference is not significant.

Page 11. 1. A: convert to km/hr Car A (50km per hour) is faster by 4.28 km/hr (or if convert to m/s car A is 1.19m/s faster than B)
2. convert both to price per 100g (easiest), but could have chosen another base. Gouda is cheaper by $0.0539 per 100g (or 5.39¢ per 100g)
3. standardize speed to m/s. speed of car A 120km/hr (or 33.33 m/s); speed of car B 5m/s (or 18km/hr); Thus car B is slower by 102 km/hr (or 28.333 m/s) than A

Exercise 4 (long solution) Which is more expensive corn chips $1.00 per 64g or potato chips $2.65 per 150g and by how much?

Solution: get both items in terms of price per gram (as the common denominator).

Corn chips: $\frac{\$1.00 \div 64}{64g \div 64} = \frac{\$0.015625}{1g}$ Potato chips: $\frac{2.65 \div 150}{150\text{g} \div 150} = \frac{\$0.017667}{1\text{g}}$

you don't have to compare the price per gram – for example start by using per 100g which is closer to a typical sized 200g bag.

Now that you have a common denominator it is easy to see that a bag of potato chips at $2.65 per 150g is more expensive, though not by much.

How much more expensive are the potato chips?

absolute difference: $0.017667 – $0.015625 = $0.002042 (per gram).

A large bag of chips contains roughly 200grams. This translates to a 'real world' difference of about $0.40 per bag of chips. For most people this is not a practically significant difference.

percent difference: take the raw difference and divide by the lower rate, then make a statement comparing larger to smaller ratio (here $ per gram)
0.002042/.015625 = 0.130688 (convert to % to get 13.0688%)

Potato chips are $0.40 more expensive per 200g bag or13.07% more expensive than corn chips.

Exercise 5 (long solution): Which is cheaper, a German beer at $2.20 for 500ml or the Canadian at $10.00 for a six pack (345ml each)? How much cheaper is it?

Given: German beer $2.20 for 500ml
Canadian beer $10 for 6×345ml (= 2070ml)
Question: Which is cheaper? (i.e. compare price for equal volumes of each beer)

Solution: find cost per 100ml for each and compare them.

German beer	Canadian beer
$\frac{\$2.20}{500\text{ml}} = \frac{?\$}{100\text{ml}}$ cross multiply etc.	$\frac{\$10.00}{6\text{x}345 = 2070\text{ml}} = \frac{?\$}{100\text{ml}}$
cost = $0.44 per 100ml	cost = $0.48 per 100ml

The German beer is cheaper by $0.04 per 100ml. Since beer is sold in various sizes the 100ml base of comparison is good enough. The difference is not large enough to be practically significant unless you think about the fact that the German beer includes transportation costs, making the price difference surprising.

Page 12 1a. 43 more people died in hospital Q, but it must be a much bigger hospital as they had about 9 times more admissions than hospital R. So comparing raw #of deaths is not appropriate.

b. Q : 55/9994 = 5.503 per 1000 admissions R: 12/1127 = 10.648 per 1000 admissions.

R has higher rate by 5.145 per 1000 admissions

c. if you look at the rates carefully then you can see that hospital R has about double the death rate of hospital R)

2. one approach is to convert both to a death rate per 100,000 death rate at X = 484 per 100,000; death rate at Y = 579 per 100,000; Y has a death rate that is (579 – 484 = 95) 95 deaths per 100,000 admissions higher. You could also convert this to #deaths per admission, but that would mean very small numbers which are harder to compare.

3. convert both to %: hospital A (74.22% occupancy) and hospital B (89.4% occupancy) thus hospital B has an occupancy rate 15.18% higher (89.4% vs. 74.22%) than A, this is the raw difference.

4. Alert: 0.37 per 10,000 is actually 3.7 per 100,000. Toronto's rate of pancreatic cancer is 0.8 per 100 000 higher (raw difference) which is a % difference of 21.62%.

Page 13: for discussion

Page 14-16 contingency: 1a 727 b. 67 c. 610 d. 50 e. 30/97 f. 580/630 g. Those with low alcohol consumption.

2a. 220 b. 90/560 = 16.07% c. 30/220= 13.64%. d. The rate of mold in those with no compost (17.65%) was higher than the rate of mold in plants with compost (13.64%) with the no compost group having 29.4% higher rate of mold.

3a 577 b. 356/577 = 61.70% c. 301/422 = 71.33% d. urban Canadians have a higher rate of happiness. e. 356/657 = 54.19%

4a 820/950 = 86.32% b. 130/226= 57.52% c. Those with a job have a higher chance of having a family doctor. d. with doctor (93.82%) have a higher likelihood of having a job when compared to those without a doctor (57.52% employed).

5a. 12/122 = 9.84%; b. 9.02% c. Parkdale residents are slightly more likely to swim at Sunnyside beach.

page 17: 1a

		Admitted		Total
		YES	NO	
Injury location	outdoors	129	221	350
	indoor	57	28	85
Total		186	249	435

b 85 ; c rate of injury for outdoor 129/350 = 0.369; indoor 57/85 = 0.671. i.e. the indoor injuries have a higher rate of admission.

pg 17
2a.

		Reason for choosing hospital		Total
		proximity	rating	
Previous inpatient	yes	37	66	103
	no	83	14	97
Total		120	80	200

b 103
c of previous inpatients 66/103 came because of rating; of non previous 14/97

page 18: 1a km b. dag d. dL d. cg e. hL f mm g mg h daL
2a 500g b 72 000 L c 0.5 m d 120g e 0.25m f 1270L 2 g 29000 m

page 19: 1a 600 b 4000 c 3.9 d 6000 e 482 f 39.86 g 4.963 h 0.683 i 9.62 j 1.969
1k can't do – different units (m vs kg) *l* 42.8 m 4.869 n 9600 o 9.869 p 3890