

Answers to Checking & Practising BLM 1.5 (pp. 21–22)

1. a) $3 = 2 + 1$

b) There must be 1 cube in the bag because when I add 1 to the right side of the equation, it is equal to the left side, which is 3.

c) 3; 3; 3; Yes; Yes.

3. a) model 1: $x + 2 = 6$

model 2: $x + 3 = 7$

b) Yes. For example, model 2 is the same as model 1 except 1 cube is added to each side. The solution to $x + 2 = 6$ is $n = 4$. The same solution works for $x + 3 = 7$.

4. a) $4n + 2 = 10$: 2; Yes; Yes.

$2n = 4$: 2; Yes; Yes.

$16n = 32$: 4; Yes; Yes.

$8n = 10$: No; No; No.

b) For example, $4n - 7 = 1$; I subtracted 7 from both sides of $4n = 8$ to get $4n - 7 = 1$. I did the same operation on both sides of the equation, so the equations are equivalent. The solution to $4n = 8$ is $n = 2$, and the same solution works for $4n - 7 = 1$.

Answers to Checking & Practising BLM 1.6 (pp. 26–27)

1. When the 2 bike riders meet, the distances they've travelled will add up to 150 km; The bike rider going west is travelling 15 km each hour; The bike rider going east is travelling 10 km each hour.

I'll use a table to show how far each bike rider travelled each hour and how far both riders travelled in total.

Distance Travelled Each Hour

Time (h)	Bike rider going west (km)	Bike rider going east (km)	Total distance (km)
1	15	10	25
2	30	20	50
3	45	30	75
4	60	40	100
5	75	50	125
6	90	60	150

The total distance increases by 25 km each time; 6 h

2. Mayfield Avenue Addresses

House	1	2	3	4	5	6	7	8	9	10
Address number	811	817	823	829	835	841	847	853	859	865
Change in house number										

865

3. For example, Tile Design

Step number	1	2	3	4	5	6	7	8	9	10
Number of tiles	1	3	6	10	15	21	28	36	45	55
Change in number of tiles										

55 tiles

Chapter 2: Numeration

Answers to Checking & Practising BLM 2.1 (pp. 32–33)

9. a) For example,

1st number: Two million vehicles were sold worldwide in 1920.

2nd number: In 1923, Ford sells 1 818 000 Model Ts for \$290 each.

3rd number: Four and a half million vehicles are sold worldwide in 1929.

(Source: CBC News)

b) For example,

	Millions			Thousands			Ones		
	H	T	O	H	T	O	H	T	O
1st number			2	0	0	0	0	0	0
2nd number			1	8	1	8	0	0	0
3rd number			4	5	0	0	0	0	0

c) For example,

1st number: 2 000 000; 2 million

2nd number: 1 818 000; 1 million 818 thousand

3rd number: 4 500 000; 4 million 500 thousand

10. a) For example,

Home electronics, computers, and cameras had about \$507 million in sales; 507 is greater than 105.

Telephones and home office electronics had about \$33 million in sales; 33 is less than 105.

b) For example, Toys, games, and hobby supplies had about \$105 million in sales; 507 036 000

c) For example, Telephones and home office electronics had about \$33 million in sales; If you doubled the sales, it would be \$66 million in sales; 66 million is less than 105 million because 66 is less than 105.

Answers to Checking & Practising BLM 2.3 (pp. 40–41)

1. a) 352 373 names
 b) 500; 7 hundreds; 500×7 hundreds = 3500 hundreds

Thousands			Ones		
H	T	O	H	T	O
3	5	0	0	0	0

350 000; For example, yes, my answer is reasonable because my estimate is just under 352 373.

3. a) 600; 6 hundred thousands; 600×6 hundred thousands = 3600 hundred thousands

Millions			Thousands			Ones		
H	T	O	H	T	O	H	T	O
3	6	0	0	0	0	0	0	0

360 000 000

- b) $615\,000 \times 573 = 352\,395\,000$; For example, yes, my answer is reasonable because it was a just a little under my estimate.

Answers to Checking & Practising BLM 2.4 (pp. 45–46)

1. a) Music Sales

Type	Sales	Estimate
alternative	\$7 884 000	\$7.9 million
classical	\$1 560 000	\$1.6 million
country	\$3 491 000	\$3.5 million
jazz	\$1 408 000	\$1.4 million
metal	\$4 497 000	\$4.5 million
rhythm and blues	\$3 862 000	\$3.9 million
rap	\$2 181 000	\$2.2 million

- b) alternative music estimate: \$7.9 million
 country music estimate: -\$3.5 million
 difference: \$4.4 million

2. a) 5 700 000

- b) 200 000

3. a) 8 732 833 is about 8.7 million.

- b) 724 291 is about 0.7 million.

9. a)

Country	Population	Estimate
Philippines	88 574 614	88.6 million
Thailand	63 038 247	63.0 million
Malaysia	27 452 527	27.5 million

b)

Country	Population	Estimate
Philippines	88 574 614	88.57 million
Thailand	63 038 247	63.04 million
Malaysia	27 452 527	27.45 million

- c) For example, the census might use standard form because they want to follow changes in population over time and standard form gives more accurate numbers.

Answers to Checking & Practising BLM 2.5 (pp. 50–51)

1. a) 44 kg; 278 LTO cycles; For example, How much CO_2 is released from aircraft emissions at the Vancouver Airport every day?
 b) For example, multiply; There are 44 kg of CO_2 emissions for every LTO and there are 278 LTOs per day, so I'll multiply the amount of CO_2 by the number of LTOs. I'll use a calculator. $44 \times 278 = 12\,232$. The Vancouver Airport releases 12 232 kg of CO_2 from aircraft emissions every day. I checked by dividing 12 232 by 44. I got 278, so I know my calculation was correct.
3. a) For example, the book Harry Potter and the Half-Blood Prince has 168 923 words. There are 7 books in the Harry Potter series; I would multiply because I want to know about how many words are in the series; About how many words are in the whole series of Harry Potter books?
 b) For example, I think the number of words in each book in the series is about the same. To estimate, I'll say that the number of words in Harry Potter and the Half-Blood Prince is about 170 000. Then I'll multiply 170 000 by 7. $170\,000 \times 7 = 1\,190\,000$. There are about 1 million 190 thousand words in the 7-book series.

Answers to Checking & Practising BLM 2.6 (pp. 56–57)

1. a) 100 parts out of 10 000 things is 100 ten-thousandths or $\frac{100}{10\,000}$; So, you can read the part of the race that Richard has run as 100 ten thousandths.

b)

Ones	Tenths	Hundredths	Thousandths	Ten-thousandths	Hundred-thousandths	Millionths
0	0	1	0	0		

0.0100

2. a) 0.000 45

Ones	Tenths	Hundredths	Thousandths	Ten-thousandths	Hundred-thousandths	Millionths
0	0	0	0	4	5	

b) 0.000 580

Ones	Tenths	Hundredths	Thousandths	Ten-thousandths	Hundred-thousandths	Millionths
0	0	0	0	5	8	0

c) 0.001 25

Ones	Tenths	Hundredths	Thousandths	Ten-thousandths	Hundred-thousandths	Millionths
0	0	0	1	2	5	

4. a) beluga whales: 79 millionths
 ringed seals: 77 millionths
 catfish: 2 millionths
 salmon: 1 millionth

b) beluga whales: 0.000 079
 ringed seals: 0.000 077
 catfish: 0.000 002
 salmon: 0.000 001

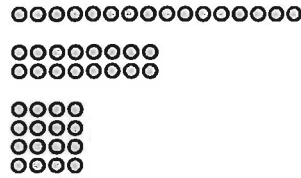
c) $79 + 77 + 2 + 1 = 159$ millionths; Yes, because the number for just the beluga whales is 79 millionths and 79 doubled is 158

4. All the decimals are in the millionths and the human cell has the largest width with 21 millionths.

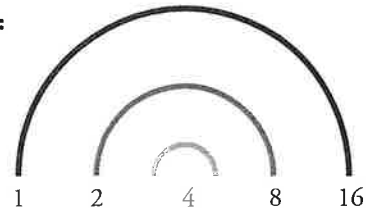
Chapter 3: Number Relationships

Answers to Checking & Practising BLM 3.1 (pp. 70–71)

1. a) Step 1:



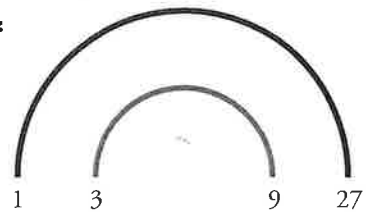
Step 2:



b) Step 1:



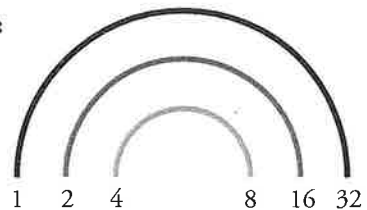
Step 2:



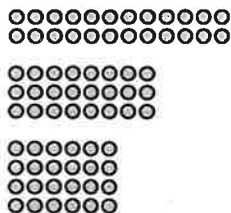
c) Step 1:



Step 2:



5. a)



Answers to Checking & Practising BLM 2.8 (pp. 64–65)

1.

Ones	Tenths	Hundredths	Thousandths	Ten-thousandths	Hundred-thousandths	Millionths
0	0	0	0	0	7	0
0	0	0	0	0	0	7

0.000 070 is 70 millionths; 0.000 007 is 7 millionths; 0.000 070

2.

Ones	Tenths	Hundredths	Thousandths	Ten-thousandths	Hundred-thousandths	Millionths
0	0	0	0	3	1	5
0	0	0	0	0	1	4
0	0	0	0	0	2	1
0	0	0	0	2	0	5

0.000 315, 0.000 205, 0.000 021, 0.000 014

3. 0.000 349 is 349 millionths; 0.000 299 is 299 millionths; For example, 0.000 349 is greater because 349 is greater than 299.