

Sample answers have been provided for open-ended questions as indicated. Where applicable, solutions for subsequent parts of a question are based on the sample answer given.

CHAPTER 1: STUDENT BOOK MASTERS

Table Time (2–6)

1. a.

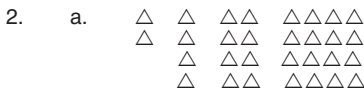
Figure	Number of Circles
1	1
2	3
3	6
4	10

b.

Figure	Number of Squares
1	1
2	3
3	5
4	7

c.

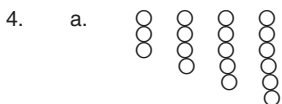
Figure	Number of Squares
1	2
2	4
3	8
4	16



- b. The number of shapes is doubled for each increasing element ($2 + 2 = 4$; $4 + 4 = 8$; $8 + 8 = 16$)
 c. The number of shapes multiplied by two is equal to the number of shapes for the next element. For the fifth element, $16 \times 2 = 32$, which is the next number in our pattern.



- b. This pattern is increasing by three.
 c. Multiply the figure number by three.



- b. This pattern starts at three and increases by one.
 c. For each term, add one to the previous number of objects.



- b. As x increases by one, y increases by five with x starting with one and y starting with four.
 c. Add five to y .

6. a.

x	y
2	10
4	12
6	14
8	16

b.

x	y
2	6
4	7
6	8
8	9

c.

x	y
2	1
4	3
6	5
8	7

d.

x	y
2	2
4	8
6	14
8	20

7. a. 23 b. 15 c. 7 d. 40

8. a.

x	$y = (x \div 2) + 1$
4	3
6	4
8	5
10	6

b.

x	$x + 6$
3	9
4	10
5	11
6	12

c.

x	$y = x - 7$
10	3
11	4
12	5
13	6

d.

x	$y = 9x$
4	36
5	45
6	54
7	63

Pattern Problems (7–10)

1. a. The number of eyes increases by two, the number of students increases by one, the number of eyes is double the number of students.
 b. $2s = e$ or $\frac{e}{2} = s$, e is the number of eyes and s is the number of students.
 c. $24 \text{ eyes} \div 2 \text{ eyes per person} = 12 \text{ students in total.}$
 2. a. The number of glasses increases by ten, the profit increases by five.
 b. The number of glasses, divided by two, minus five.
 $\frac{g}{2} - 5 = p$ or $(g \div 2) - 5 = p$ where g is the number of glasses and p is the profit in dollars.
 c. His profit is \$20.
 d. I think Xander spent \$5 on materials because he needed to sell more than 10 glasses to start collecting his profit.

3. a.

Number of Squares	Number of toothpicks
1	4
2	7
3	10

- b. The number of squares increases by one. The number of toothpicks increases by three.
 c. Start with four, add three for each new square. Triple the number of squares and add one.
 d. Start with four (which is one square); the other 14 squares each need three toothpicks. I can multiply 14×3 and add 4. $42 + 4 = 46$

4. a.

Youssef's age	Youssef's brother's age
10	6
11	7
13	8

- b. Subtract four from Youssef's age.
 c. $25 - 4 = 21$. Youssef's brother will be 21 when Youssef is 25.

5. a.

Tricycles	Wheels
1	3
2	6
3	9
4	12
5	15
6	18
7	21
8	24
9	27
10	30
11	33
12	36
13	39
14	42
15	45

check:
 $15 \times 3 = 45$

b. Using beans, you can create 15 groups of three.

 = 15
 = 15 = 45
 = 15

Multiply 15 tricycles by three wheels per tricycle
 $15 \times 3 = 45$

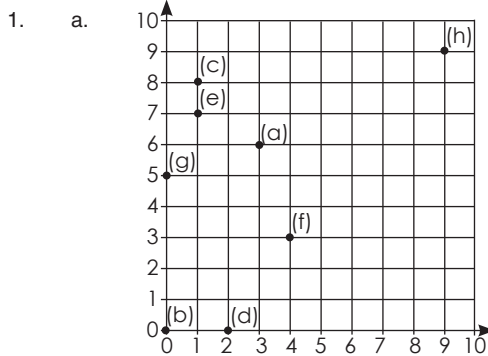
c. Both use multiples of three.

6. a. **Sample answer:**

Number of Students	Time (seconds)
2	6
3	9
4	12

- b. For every person, it takes three seconds to do the wave.
 c. I could multiply the number of people by three seconds.
 d. $350 \text{ students} \times 3 \text{ seconds} = 1050 \text{ seconds}$ or 17 minutes and 30 seconds.

Perfect Points (11–15)

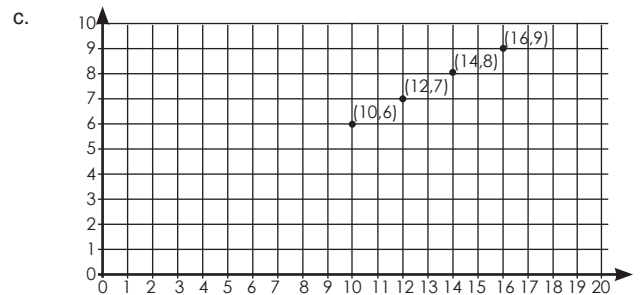
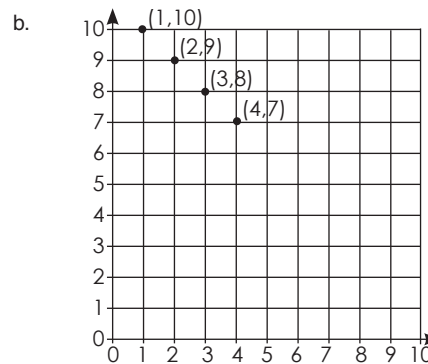
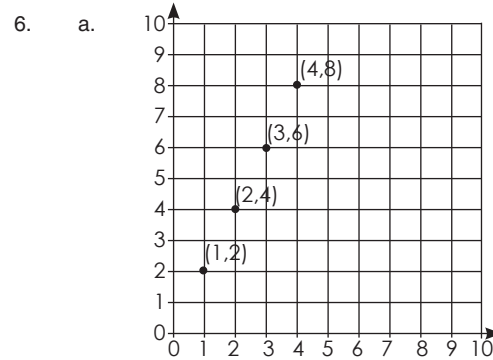


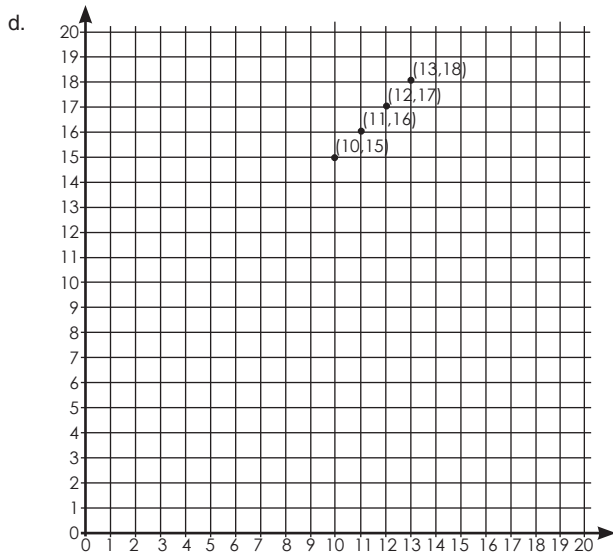
2. a. A(1, 1), B(3, 1), C(1, 6), D(2, 4), E(5, 5), F(4, 2)
 b. AB is two units long.
 c. AC is five units long.
 d. AD is a diagonal line. It is difficult to count the partial units.

3. a. y-axis b. origin
 c. coordinates d. point
 e. x-axis

4. a. I think AD are further apart because if you count units, you have to count two units up and two units to the right, making four units.
 b. You could use a ruler and measure each of the distances and compare those measurements.

5. a. (10, 21)
 (11, 22)
 (12, 23)
 (13, 24)
 b. (10, 11)
 (11, 12)
 (12, 13)
 (13, 14)
 c. (1, 4)
 (2, 3)
 (3, 2)
 (4, 1)
 d. (10, 5)
 (11, 6)
 (12, 7)
 (13, 8)





7. a.

x	y
2	1
4	2
6	3
8	4

b.

x	y
0	0
1	3
2	6
3	9

c.

x	y
1	3
2	4
3	5
4	6

d.

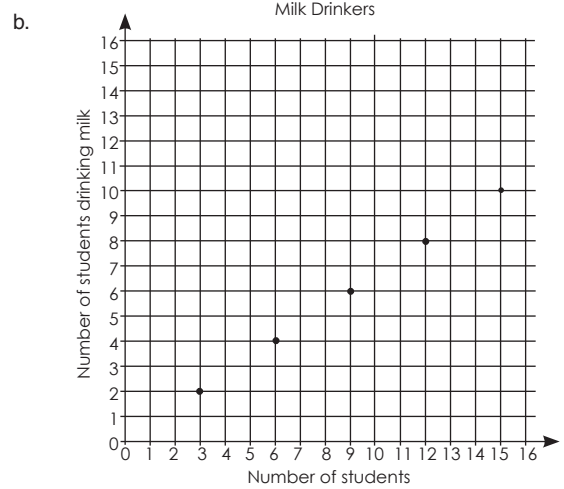
x	y
1	1
2	3
3	6
4	10

Good Graphs (16–20)

- Brother is three years older than sister.
 - Add three years to sister's age to find brother's age; subtract three from brother's age to find sister's age.
 - $7 - 3 = 4$
 10. I can look on the graph and see that when sister is seven, brother will be 10. Or I can calculate $7 + 3 = 10$.

2. a.

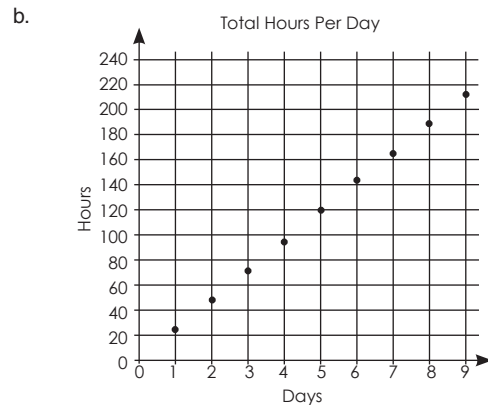
Number of students	Number of students who drink milk
15	10
18	12
21	14
24	16



- There are 27 students in my class. Eighteen of them will drink milk with their lunch.
- The number of clean socks decreases as the number of dirty socks increases.
 - As the number of clean socks decreases by two, the number of dirty socks increases by two.
 - Xyla has 16 socks or eight pairs.
 - Eight will be clean.

4. a.

Days	Hours
1	24
2	48
3	72
4	96
5	120
6	144

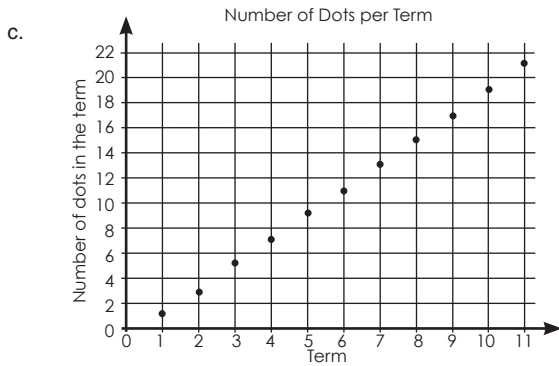


- The number of days, multiplied by 24, gives the number of hours.
- 168 hours in one week.
- I go to school five days a week for seven hours a day. $7 \times 5 = 35$. I go to school for 35 hours out of 168 per week.

5. a.
-
- Term 4 Term 5

b.

Term	Number of dots in the term
1	1
2	3
3	5
4	7
5	9



d. Add two to the previous number of dots. Double the term number, then subtract two.

e. The tenth term is made up of 19 dots.

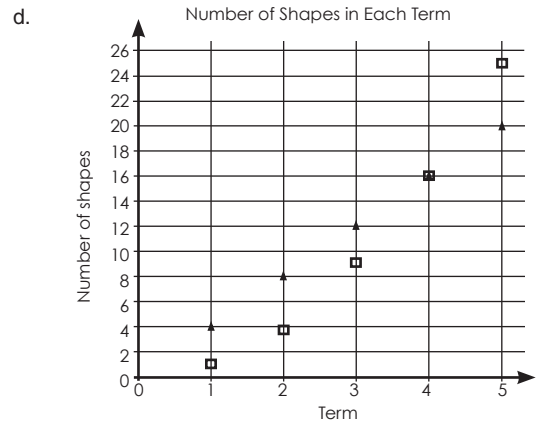
6. a. I think I will need more triangles, because I needed more for the first three figures.

b.

Term	Number of triangles
1	4
2	8
3	12
4	16
5	20

Term	Number of squares
1	1
2	4
3	9
4	16
5	25

c. The triangles increase by four each time the element increases by one. The number of squares is the term number multiplied by itself.



e. The triangle points lie in a straight line and the square points lie on a curve.

f. The number of triangles goes up by four every time the term number increases by one. This is a straight line on the graph. The number of squares goes up faster, by a bigger number each time. This is a curved line on the graph.