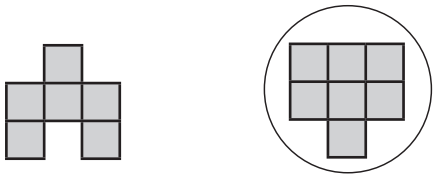
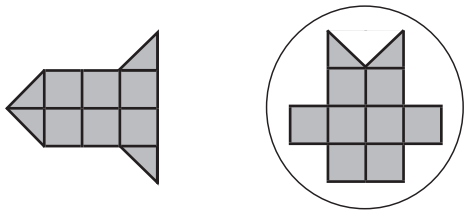
ANSWERS

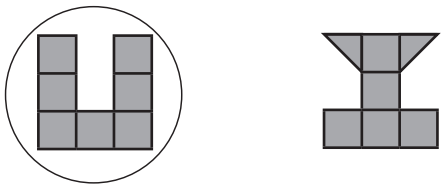
Chapter 6 AREA AND PERIMETER

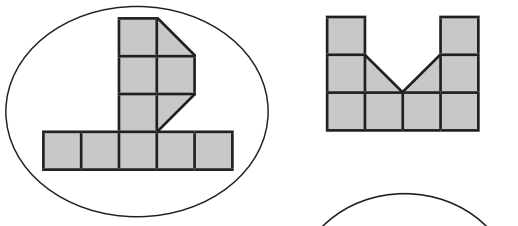
Exercise 6A Area (I)

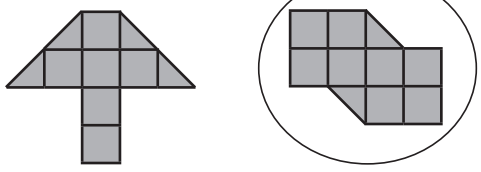
I. **(a)** 8 **(b)** 7
(c) 7 **(d)** 9
(e) 6 **(f)** 9

2. **(a)** 

(b) 

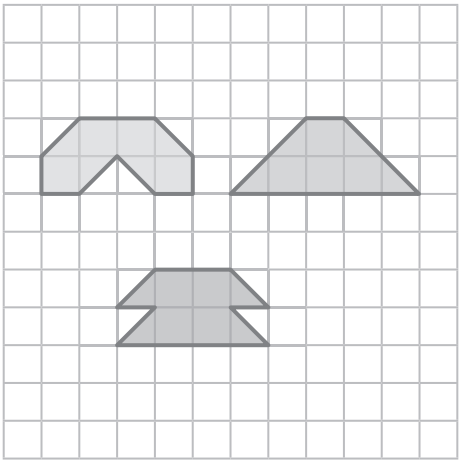
(c) 

(d) 

(e) 

3. **(a)** 10 **(b)** 8
(c) 9 **(d)** 9
(e) A **(f)** B
(g) C, D

4. Accept all correct figures. Examples:



Exercise 6A Area (2)

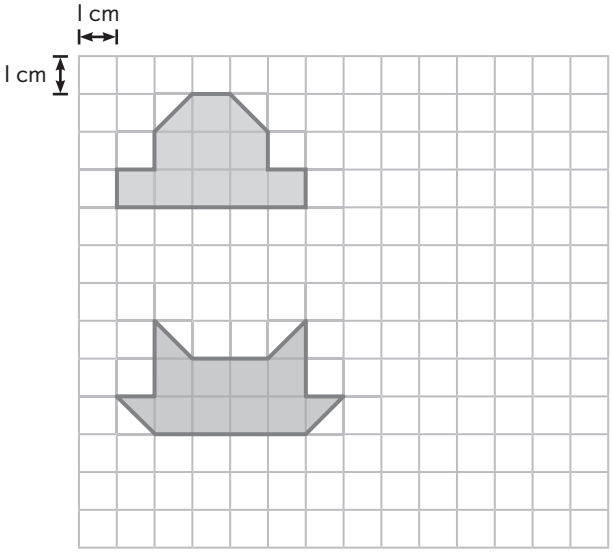
I. **(a)** 5 **(b)** 7
(c) 5 **(d)** 4
(e) 8 **(f)** E
(g) D **(h)** A, C

2. **(a)**

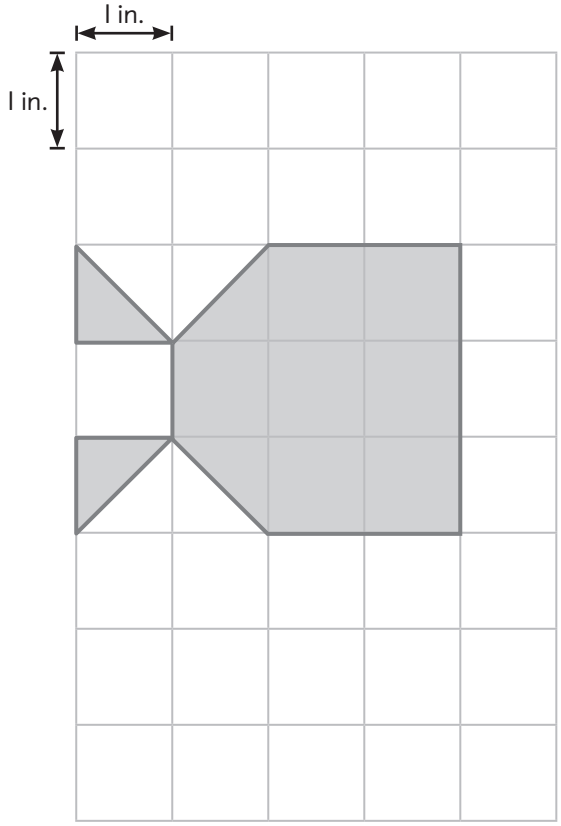
Figure	W	X	Y	Z
Area (square in.)	7	6	6	2

(b) W **(c)** X, Y

3. Accept all correct figures. Examples:



4. Accept all correct figures. Example:



Exercise 6A Area (3)

1. (a)

Figure	A	B	C	D	E
Area (square m)	5	7	6	7	10

(b) E **(c)** A **(d)** B, D

2. (a) Area of Figure A = 6 square ft

Area of Figure B = 8 square ft

Figure B has a greater area than Figure A.

(b) Area of Figure C = 7 square yd

Area of Figure D = 9 square yd

Figure C has a smaller area than Figure D.

Exercise 6B Area of Squares and Rectangles

1. (a) Area of Rectangle A = 4 × 3

= 12 square cm

(b) Area of Square B = 5 × 5

= 25 square cm

(c) Area of Rectangle C = 9 × 2

= 18 square cm

2. (a) Area = 7 × 3

= 21 square m

(b) Area = 15 × 2

= 30 square in.

(c) Area = 6 × 6

= 36 square yd

3. (a) Area = 5 × 3

= 15 square m

(b) Area = 3 × 3

= 9 square m

(c) Area = 8 × 3

= 24 square m

(d) (5 × 3) + (3 × 3) = 8 × 3
(Rectangle X) (Square Y) (Rectangle Z)

4. (a) (4 × 2) + (6 × 2)

= 8 + 12

= 20 square ft

(b) (3 × 2) + (7 × 2)

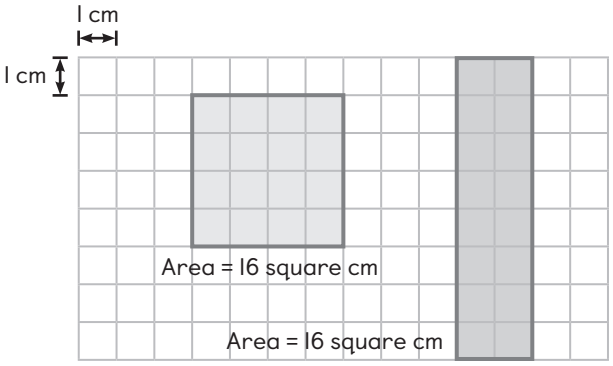
= 6 + 14

= 20 square ft

10 × 2 = (4 × 2) + (6 × 2)

= (3 × 2) + (7 × 2)

5. Accept all correct figures. Example:



Exercise 6C Perimeter (1)

1. **(a)**

Figure	A	B	C	D	E	F
Perimeter (cm)	14	14	18	12	10	16

(b) E **(c)** C **(d)** A, B

2.

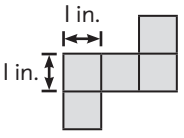


Figure P

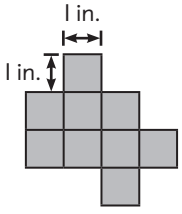


Figure Q

Perimeter = 12 in.

Area = 5 square in.

Perimeter = 16 in.

Area = 9 square in.

Figure P has a shorter perimeter than Figure Q.

Figure Q has a greater area than Figure P.

3.

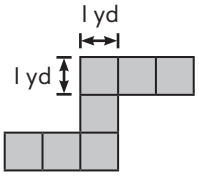


Figure Y

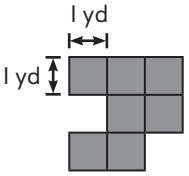


Figure Z

Perimeter = 16 yd

Area = 7 square yd

Perimeter = 14 yd

Area = 7 square yd

Figure Y has a longer perimeter than Figure Z.

The areas are the same.

Exercise 6C Perimeter (2)

1. **(a)** 2 + 5 + 2 + 5 = 14

The perimeter of the figure is 14 centimeters.

(b) 8 + 5 + 10 + 4 + 4 + 8 = 39

The perimeter of the figure is 39 meters.

(c) 5 + 6 + 5 + 7 + 4 + 5 = 32

The perimeter of the figure is 32 feet.

2. **(a)** 28 − 3 − 8 − 6 = 11

The unknown side length is 11 inches.

(b) 32 − 2 − 10 − 2 − 2 − 4 = 12

The unknown side length is 12 centimeters.

Exercise 6D Composite Figures

1. **(a)** 5 × 2 = 10
The area of Rectangle A is 10 square meters.

3 × 3 = 9
The area of Square B is 9 square meters.

5 × 2 = 10
The area of Rectangle C is 10 square meters.

10 + 9 + 10 = 29
The area of the figure is 29 square meters.

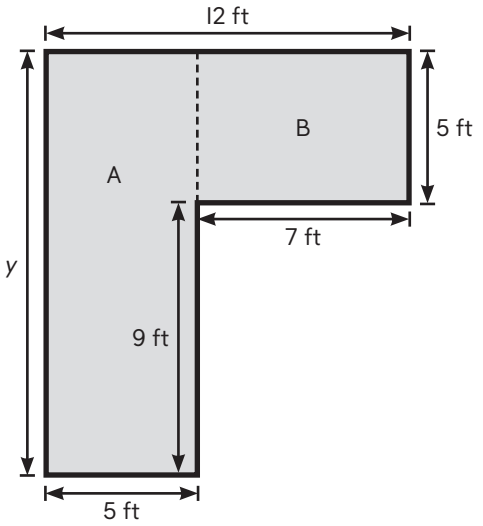
(b) 4 × 2 = 8
The area of Rectangle X is 8 square meters.

4 × 2 = 8
The area of Rectangle Y is 8 square meters.

4 × 2 = 8
The area of Rectangle Z is 8 square meters.

8 + 8 + 8 = 24
The area of the figure is 24 square meters.

2.



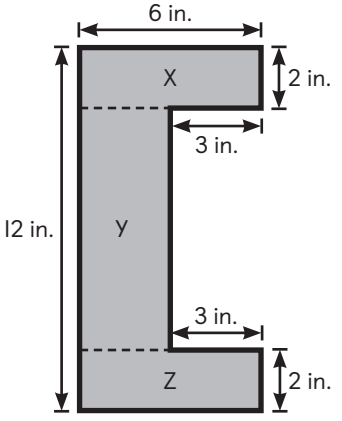
5 + 9 = 14
y = 14 ft

Area of Rectangle A = 14 × 5
= 70 square ft

Area of Rectangle B = 7 × 5
= 35 square ft

Area of the figure = 70 + 35
= 105 square ft
The area of the figure is 105 square feet.

3.



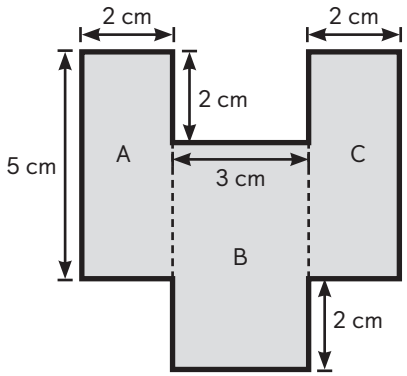
Area of Rectangle X = 6 × 2
= 12 square in.

12 − 2 − 2 = 8
The length of Rectangle Y is 8 inches.
6 − 3 = 3
The width of Rectangle Y is 3 inches.
Area of Rectangle Y = 8 × 3
= 24 square in.

Area of Rectangle Z = 6 × 2
= 12 square in.

Area of the figure = 12 + 24 + 12
= 48 square in.
The area of the figure is 48 square inches.

4.



Area of Rectangle A = 5 × 2
= 10 square cm

5 − 2 = 3
3 + 2 = 5
The length of Rectangle B is 5 centimeters.

Area of Rectangle B = 5 × 3
= 15 square cm

Area of Rectangle C = 5 × 2
= 10 square cm

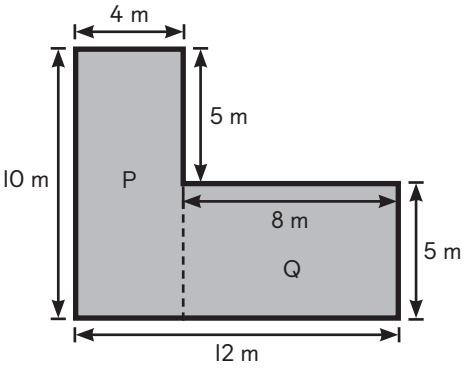
Area of the figure = 10 + 15 + 10
= 35 square cm

The area of the figure is 35 square centimeters.

Exercise 6E Word Problems

1. The length of the unknown side is 4 yards.
6 + 6 + 4 + 8 + 6 + 4 + 4 + 18 = 56
The perimeter of Kylie's flower bed is 56 yards.

2.



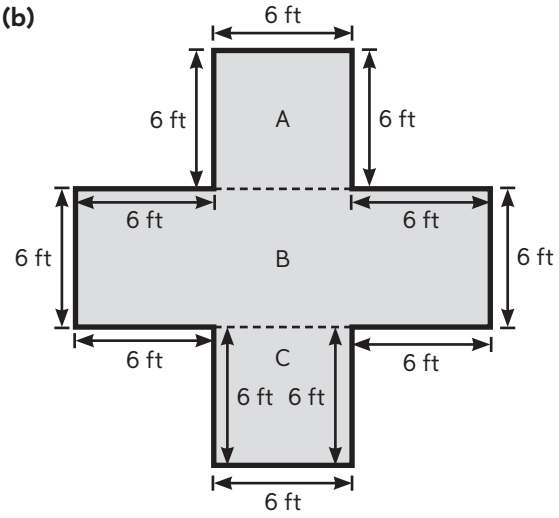
10 × 4 = 40
The area of Rectangle P is 40 square meters.

12 − 4 = 8
The length of Rectangle Q is 8 meters.
10 − 5 = 5
The width of Rectangle Q is 5 meters.
8 × 5 = 40
The area of Rectangle Q is 40 square meters.

40 + 40 = 80
The area of Jake's land is 80 square meters.

3. **(a)** 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6
= 72
The total length of the fence is 72 feet.

(b)



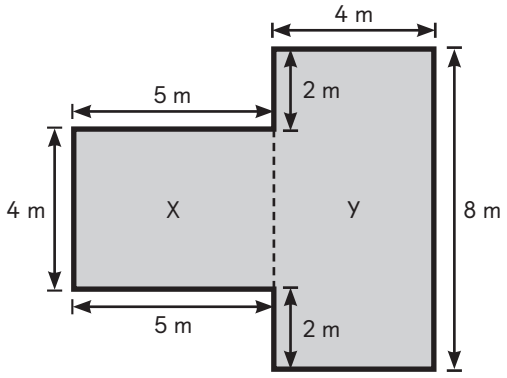
6 × 6 = 36
The area of Square A is 36 square feet.

6 + 6 + 6 = 18
The length of Rectangle B is 18 feet.
18 × 6 = 108
The area of Rectangle B is 108 square feet.

6 × 6 = 36
The area of Square C is 36 square feet.

36 + 108 + 36 = 180
The area of the play area is 180 square feet.

4.



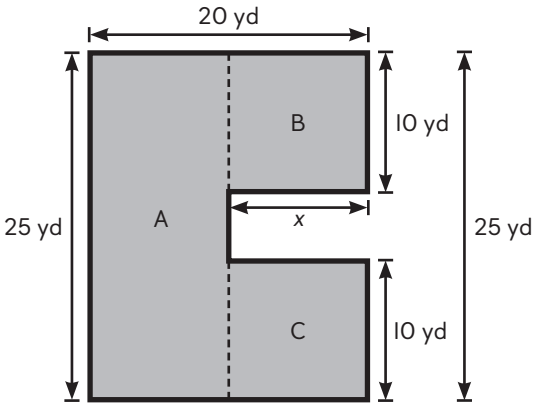
5 × 4 = 20
The area of Rectangle X is 20 square meters.

8 × 4 = 32
The area of Rectangle Y is 32 square meters.

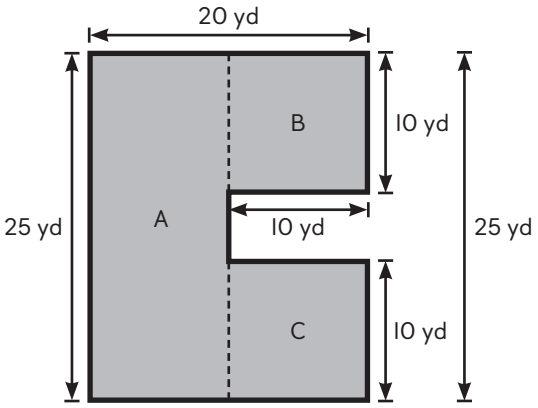
20 + 32 = 52
The total area of the room is 52 square meters.

52 × 9 = 468
It will cost Mr. Riley $468 in all.

5.



As B and C are squares, x = 10 yd.



20 − 10 = 10
The width of Rectangle A is 10 yards.
25 × 10 = 250
The area of Rectangle A is 250 square yards.

10 × 10 = 100
The area of Square B is 100 square yards.

10 × 10 = 100
The area of Square C is 100 square yards.

250 + 100 + 100 = 450
The area of the garden is 450 square yards.

Chapter Practice

1. A

2. C

3. C

4. D

5. 2 + 2 + 2 + 2 = 8
The length of each rectangle is 8 inches.

8 × 2 = 16
The area of each rectangle is 16 square inches.

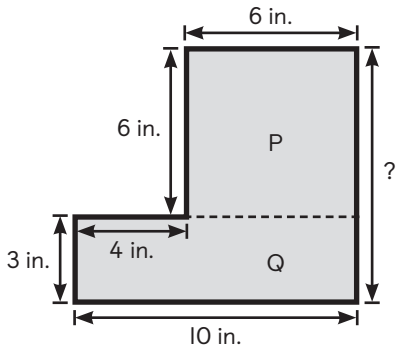
16 × 5 = 80
The area of the figure is 80 square inches.

6. 8 × 3 = 24
The area of the rectangle is 24 square meters.

3 × 3 = 9
The area of the square is 9 square meters.

24 + 9 = 33
The area of the figure is 33 square meters.

7.



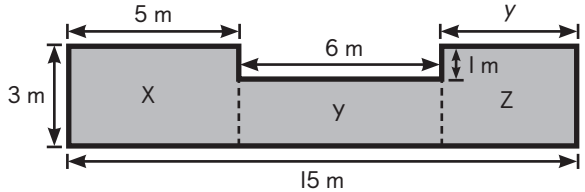
(a) 38 − 3 − 4 − 6 − 6 − 10 = 9
The unknown side length is 9 inches.

(b) 6 × 6 = 36
The area of Square P is 36 square inches.

10 × 3 = 30
The area of Rectangle Q is 30 square inches.

36 + 30 = 66
The area of the figure is 66 square inches.

8. **(a)**



15 − 5 − 6 = 4
y = 4 m
3 + 5 + 1 + 6 + 1 + 4 + 3 + 15 = 38
His drainage system is 38 meters long.

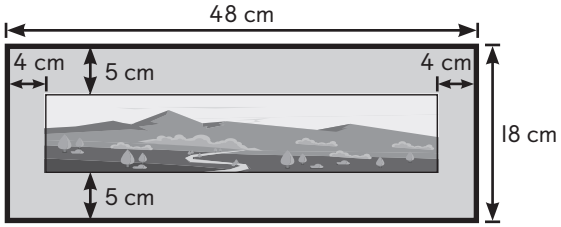
(b) 5 × 3 = 15
The area of Rectangle X is 15 square meters.

3 − 1 = 2
The width of Rectangle Y is 2 meters.
6 × 2 = 12
The area of Rectangle Y is 12 square meters.

The length of Rectangle Z is 4 meters.
4 × 3 = 12
The area of Rectangle Z is 12 square meters.

15 + 12 + 12 = 39
The area of his plot of land is 39 square meters.

9.



48 − 4 − 4 = 40
The length of the painting is 40 cm.

18 − 5 − 5 = 8
The width of the painting is 8 cm.

40 × 8 = 320
The area of the painting is 320 square centimeters.

10. **(a)** The unknown side length in Figure A is 5 feet.

(b) No, I do not agree with James.

5 × 2 = 10
The area of Figure A is 10 square feet.
10 ÷ 2 = 5
The area of each triangle in Figure A is 5 square feet.

4 × 3 = 12
The area of Figure B is 12 square feet.
12 ÷ 2 = 6
The area of each triangle in Figure B is 6 square feet.

Thus, the triangles in Figures A and B do not have the same area.

Chapter 7 FRACTIONS

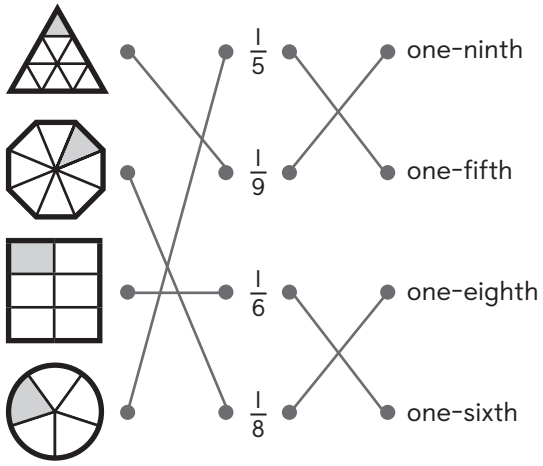
Exercise 7A Unit Fractions

1. **(a)** $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$ 1 **(b)** $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$ 1

(c) $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$ 1 **(d)** $\frac{1}{2}$ $\frac{1}{5}$ $\frac{1}{10}$ 1

2. unit

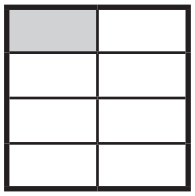
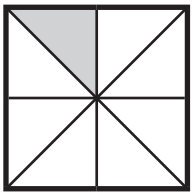
3.

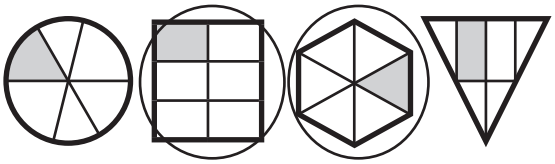


4. Accept any 1 part colored. Example:

(a)  **(b)** 

5. Accept any 1 part colored. Example:

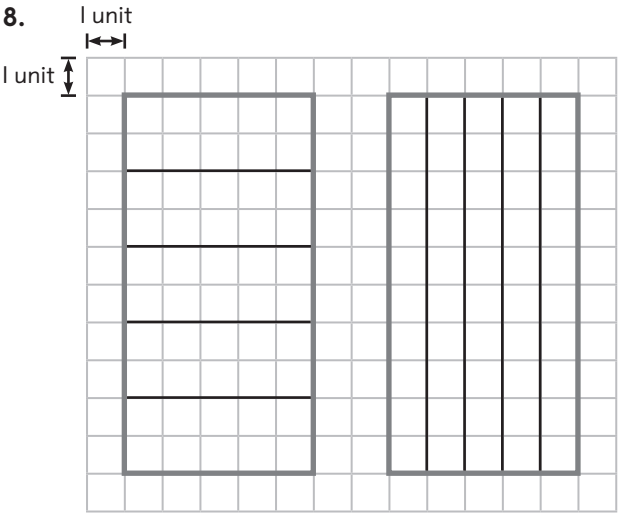
 

6. 

7. **(a)**

The shape is not divided into 3 equal parts.

8.



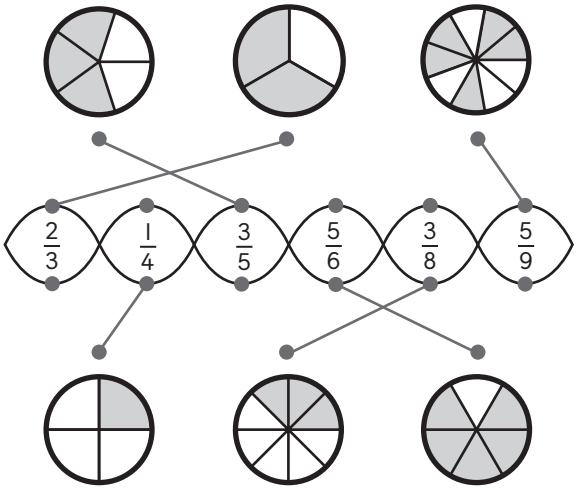
(a) Each part is $\frac{1}{5}$ of the rectangle.

(b) The area of each part is 10 square units.

(c) The area of each part of the rectangle is $\frac{1}{5}$ the area of the rectangle.

Exercise 7B More Fractions

1.



2. **(a)** Accept any 3 parts colored.

(b) Accept any 2 parts colored.

(c) Accept any 1 part colored.

(d) Accept any 7 parts colored.

3. **(a)** $\frac{2}{5}$ **(b)** $\frac{3}{6}$ or $\frac{1}{2}$

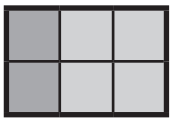
(c) $\frac{3}{10}$ **(d)** $\frac{7}{12}$

4. **(a)** $\frac{3}{7} = \frac{1}{7} + \frac{1}{7} + \frac{1}{7}$

(b) $\frac{5}{6} = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$

(c) $\frac{4}{12} = \frac{1}{12} + \frac{1}{12} + \frac{1}{12} + \frac{1}{12}$

5. **(a)**

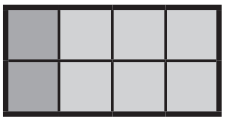


2 sixths and 4 sixths make 6 sixths.

$\frac{2}{6}$ and $\frac{4}{6}$ make $\frac{6}{6}$.

$\frac{6}{6}$ is 1 whole.

(b) Accept all correct answers. Example:

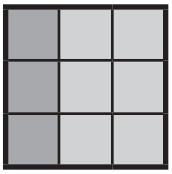


2 eighths and 6 eighths make 8 eighths.

$\frac{2}{8}$ and $\frac{6}{8}$ make $\frac{8}{8}$.

$\frac{8}{8}$ is 1 whole.

(c) Accept all correct answers. Example:

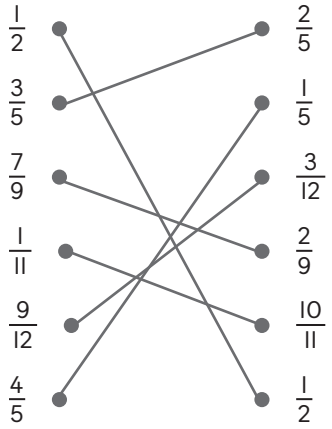


3 ninths and 6 ninths make 9 ninths.

$\frac{3}{9}$ and $\frac{6}{9}$ make $\frac{9}{9}$.

$\frac{9}{9}$ is 1 whole.

6.



Exercise 7C Fractions Greater Than 1

1. **(a)** 6

(b) 9

(c) $\frac{12}{8}$

(d) $\frac{16}{10}$

(e) $\frac{15}{4}$

(f) $\frac{14}{6}$

(g) $\frac{13}{5}$

(h) $\frac{16}{7}$

(i) $\frac{24}{10}$

2. **(a)** Accept any 5 parts colored.

(b) Accept any 6 parts colored.

(c) Accept any 13 parts colored.

(d) Accept any 15 parts colored.

(e) Accept any 14 parts colored.

Exercise 7D Compare and Order Fractions (I)

1. **(a)** $\frac{5}{9}$ $\left(\frac{7}{9}\right)$

(b) $\left(\frac{3}{8}\right)$ $\frac{1}{8}$

(c) $\left(\frac{1}{4}\right)$ $\frac{1}{8}$

(d) $\left(\frac{2}{3}\right)$ $\frac{2}{6}$

2. **(a)** $\frac{2}{3}$ $\left(\frac{1}{3}\right)$

(b) $\frac{1}{2}$ $\left(\frac{1}{4}\right)$

(c) $\left(\frac{3}{8}\right)$ $\frac{3}{4}$

3. **(a)** >

(b) >

(c) <

(d) >

(e) >

(f) >

(g) <

(h) <

Exercise 7D Compare and Order Fractions (2)

1. **(a)** $\frac{3}{5}$ $\frac{4}{5}$ $\boxed{\frac{2}{5}}$

(b) $\frac{4}{6}$ $\boxed{\frac{3}{6}}$ $\frac{5}{6}$

(c) $\boxed{\frac{1}{4}}$ $\frac{1}{3}$ $\frac{1}{2}$

(d) $\boxed{\frac{2}{8}}$ $\frac{2}{6}$ $\frac{2}{3}$

2. **(a)** $\boxed{\frac{9}{10}}$ $\frac{7}{10}$ $\frac{6}{10}$

(b) $\frac{1}{4}$ $\frac{2}{4}$ $\boxed{\frac{3}{4}}$

(c) $\frac{1}{6}$ $\boxed{\frac{1}{5}}$ $\frac{1}{9}$

(d) $\boxed{\frac{5}{9}}$ $\frac{5}{12}$ $\frac{5}{10}$

3. **(a)** $\frac{1}{5}, \frac{1}{6}, \frac{1}{7}$

(b) $\frac{4}{5}, \frac{4}{7}, \frac{4}{12}$

(c) $\frac{7}{11}, \frac{4}{11}, \frac{1}{11}$

(d) $1, \frac{2}{3}, \frac{1}{3}$

4. **(a)** $\frac{1}{7}, \frac{1}{5}, 1$

(b) $\frac{5}{9}, \frac{5}{7}, \frac{5}{6}$

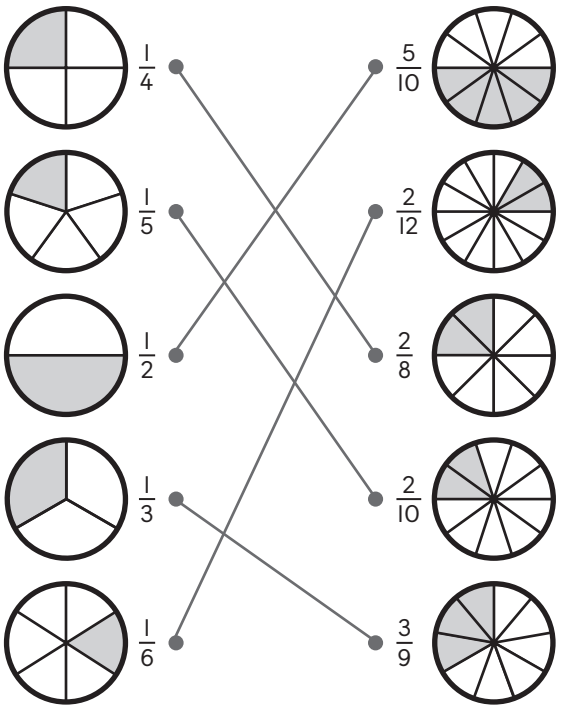
(c) $\frac{2}{5}, \frac{3}{5}, \frac{4}{5}$

(d) $\frac{12}{11}, \frac{12}{7}, \frac{12}{5}$

5. No, I do not agree with Joshua.
$\frac{9}{7} = \frac{7}{7} + \frac{2}{7}$
$\frac{7}{7} = \frac{9}{9} = 1$
Thus, $\frac{9}{7}$ is greater than $\frac{7}{7}$ and $\frac{9}{9}$.

Exercise 7E Equivalent Fractions

1.



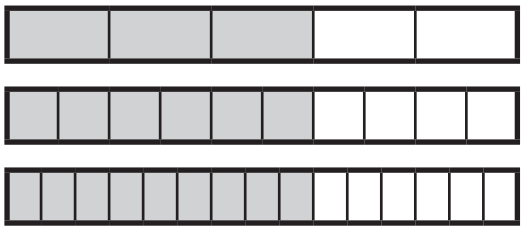
2. **(a)** 3 **(b)** 8
(c) 1 **(d)** 2
(e) 4 **(f)** 10

3. **(a)** $\frac{1}{2} = \boxed{\frac{2}{4}} = \boxed{\frac{4}{8}}$

(b) $\frac{2}{3} = \boxed{\frac{4}{6}} = \boxed{\frac{8}{12}}$

(c) $\frac{3}{4} = \boxed{\frac{6}{8}} = \boxed{\frac{12}{16}}$

4.



$\frac{3}{5} = \boxed{\frac{6}{10}} = \boxed{\frac{9}{15}}$

5. **(a)** $\frac{2}{3} = \frac{6}{9}$ **(b)** $\frac{3}{12} = \frac{1}{4}$

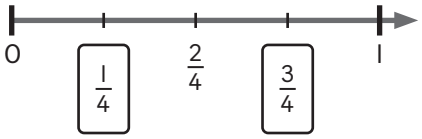
6. $1 = \boxed{\frac{2}{2}} = \boxed{\frac{5}{5}} = \boxed{\frac{9}{9}} = \boxed{\frac{12}{12}}$

7. Yes, I agree with Francis.
Accept all correct explanations. Example:

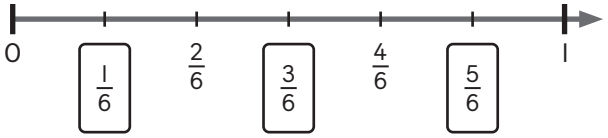
$\frac{5}{10} = \frac{4}{8}$ as shown below by the shaded parts.

Exercise 7F Fractions on a Number Line

1. **(a)**

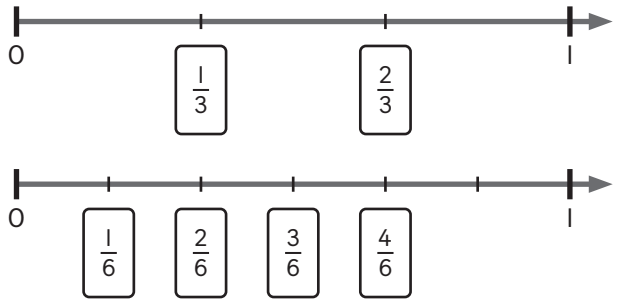


(b)



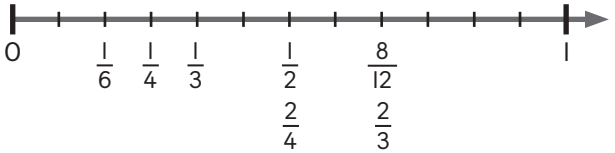
2. **(a)** $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8}$ **(b)** $\frac{3}{4} = \frac{6}{8}$

3. **(a)**



(b) $\frac{1}{3} = \frac{2}{6}$ $\frac{2}{3} = \frac{4}{6}$

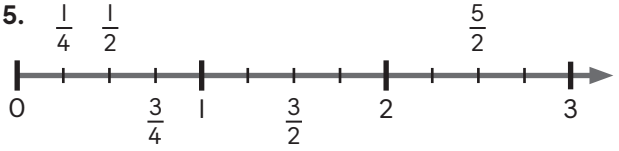
4. **(a)**



(b) $\frac{1}{2} > \frac{1}{6}$ $\frac{2}{3} > \frac{2}{4}$

$\frac{1}{2} = \frac{2}{4}$ $\frac{2}{3} = \frac{8}{12}$

5.



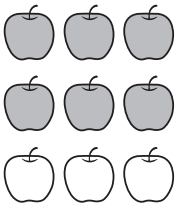
Exercise 7G Fractions of a Set

1. **(a)** $\frac{1}{7}$ **(b)** $\frac{4}{12}$ or $\frac{1}{3}$ **(c)** $\frac{2}{14}$ or $\frac{1}{7}$

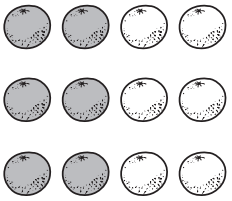
2. **(a)** $\frac{5}{20}$ or $\frac{1}{4}$ **(b)** $\frac{10}{20}$ or $\frac{1}{2}$

3. **(a)** 1 **(b)** 2
(c) 3 **(d)** 4
(e) 2 **(f)** 3
(g) 5 **(h)** 3

4. **(a)**



(b)

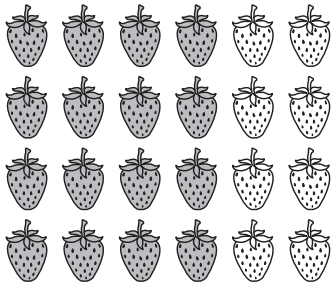


$\frac{2}{3}$ of 9 = 6 $\frac{2}{4}$ of 12 = 6

(c)

$\frac{3}{5}$ of 10 = = 6

(d)



$\frac{2}{3}$ of 24 = 16

Chapter Practice

1. D

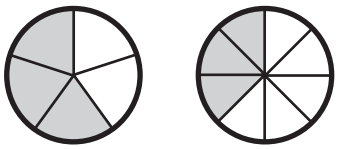
2. C

3. A

4. B

5. C

6. No, I do not agree with Melinda.
Accept all correct explanations. Example:



From the diagram, I see that $\frac{3}{5}$ is greater than $\frac{3}{8}$.

When the numerators are the same, the fraction with the smaller denominator is greater.

So, $\frac{3}{5} > \frac{3}{8}$.

7. $\frac{1}{5}$, $\frac{1}{9}$, and $\frac{1}{6}$ are unit fractions.
Each of them is less than 1.
So, 1 is the greatest.
When the numerators are the same, the fraction with the greatest denominator is the least.
So, $\frac{1}{9}$ is the least.

Lastly, $5 < 6$. So, $\frac{1}{5} > \frac{1}{6}$.

From least to greatest: $\frac{1}{9}, \frac{1}{6}, \frac{1}{5}, 1$

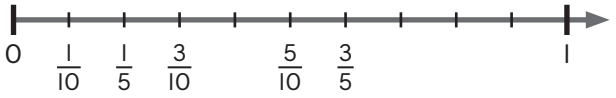
8. $\frac{9}{8}$ is the only fraction that is greater than 1.
So, $\frac{9}{8}$ is the greatest.
$\frac{1}{12}$ and $\frac{1}{8}$ are unit fractions.
Each of them is less than $\frac{3}{8}$.

So, $\frac{3}{8}$ is the next greatest fraction.

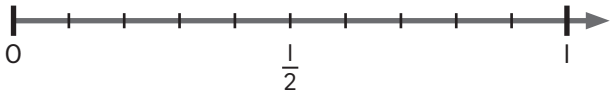
When the numerators are the same, the fraction with the smaller denominator is greater.
So, $\frac{1}{8} > \frac{1}{12}$.

From greatest to least: $\frac{9}{8}, \frac{3}{8}, \frac{1}{8}, \frac{1}{12}$

9. **(a)**



(b)



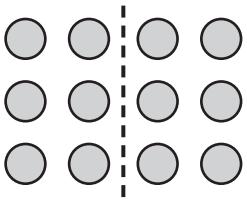
$\frac{5}{10}$ is halfway between 0 and 1.

$\frac{1}{2}$ is also halfway between 0 and 1.

So, $\frac{5}{10} = \frac{1}{2}$.

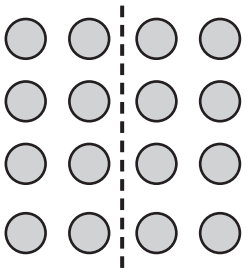
10. No, I do not agree.

Joyce's marbles



$\frac{1}{2}$ of 12 = 6

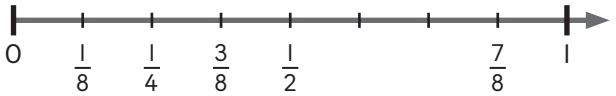
Leon's marbles



$\frac{1}{2}$ of 16 = 8

Since the number of marbles in each set is not the same, $\frac{1}{2}$ of Joyce's marbles is not equal to $\frac{1}{2}$ of Leon's marbles.

11.



Accept all correct explanations. Example:

$\frac{1}{8}$ is closest to 0. $\frac{7}{8}$ is farthest from 0.

$\frac{3}{8}$ is closer to 0 than $\frac{1}{2}$ is. So, $\frac{3}{8}$ is less than $\frac{1}{2}$.

$\frac{3}{8}$ is farther from 0 than $\frac{1}{4}$ is. So, $\frac{3}{8}$ is greater than $\frac{1}{4}$.

12. **(a)** $\frac{2}{10}$ or $\frac{1}{5}$

(b) 10 − 2 − 2 − 4 = 2
$2 of his money was not spent.
Thus, $\frac{2}{10}$ or $\frac{1}{5}$ of his money was not spent.

Chapter 8 MASS AND LIQUID VOLUME

Exercise 8A Measure Mass in Kilograms

1. **(a)** more **(b)** less **(c)** more

2. **(a)** 2 **(b)** 3
(c) 6 **(d)** 9
(e) 5 **(f)** 7

3. **(a)** more **(b)** less
(c) less **(d)** more

4. **(a)** The mass of Ball X is more than 3 kilograms.
The mass of Ball Y is less than 3 kilograms.

(b) No, it is not possible to tell which ball is the heaviest.
Accept all correct explanations. Example:
I cannot tell the exact mass of Ball X.
Both Ball X and Ball Z are heavier than 3 kilograms, but I am unable to tell which ball is heavier.

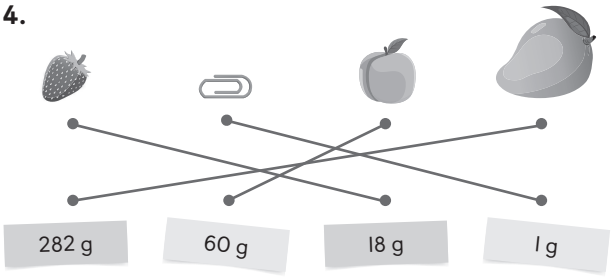
Exercise 8B Measure Mass in Grams

1. **(a)** 40 **(b)** 150
(c) 480 **(d)** 720
(e) 204 **(f)** 925

2. doll (lightest) toy airplane toy truck (heaviest)

3. cabbage (heaviest) onions tomatoes (lightest)

4.



5. Gift box A weighs less than 300 grams.
Gift box B weighs 300 grams.
Gift box C weighs more than 300 grams.
Thus, Gift box C is the heaviest.

6. No, I do not agree with Mitchell.
Accept all correct explanations. Example:
Different types of weighing scales are used to weigh the objects.

A kilogram weighing scale is used to weigh the bag of pebbles and a gram weighing scale is used to weigh the bag of flour.

So, even though the needles are pointing in the same direction, Mitchell cannot say that the two bags have the same mass.

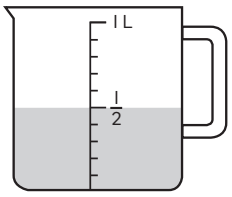
In fact, the mass of the bag of pebbles is 5 kilograms and the mass of the bag of flour is 500 grams. They do not have the same mass since the units of measurement are not the same.

Exercise 8C Measure Volume in Liters

1. **(a)** less **(b)** about **(c)** more

2. **(a)** more **(b)** less

3.



4. **(a)** ○ Less than 1 L
✔ More than 1 L

(b) ✔ Less than 1 L
○ More than 1 L

(c) ○ Less than 1 L
✔ More than 1 L

5. **(a)**
- ◯ $\frac{1}{2}$ liter
- ✔ 2 liters
- ◯ 12 liters

(b)
- ◯ 5 liters
- ◯ 50 liters
- ✔ 500 liters

(c)
- ✔ $\frac{1}{4}$ liter
- ◯ 1 liter
- ◯ 4 liters

6. **(a)** 7 **(b)** 6 **(c)** 2 **(d)** 3

Exercise 8D Word Problems

1. 3 − 2 = 1
The mass of the papaya is ___1___ kilogram.

2. 165 + 288 = 453
The total mass of the phone and the wallet is ___453___ grams.

3. 30 ÷ 6 = 5
The mass of each sack of onions is ___5___ kilograms.

4. 320 − 180 = 140
There are ___140___ liters of water in Tank B.

5. 930 − 105 = 825
The mass of the vegetables was ___825___ grams.

6. 32 ÷ 8 = 4
There are ___4___ liters of water in each flask.

7. 10 − 4 = 6
6 ÷ 2 = 3
___3___ bottles of water are needed to fill the container fully.

8. 5 × 10 = 50
The capacity of the container is ___50___ liters.

Chapter Practice

1. D

2. A

3. B

4. C

5. D

6. 115

7. 480

8. **(a)** Mass of Bag S = 15 kg

15 + 6 = 21
The mass of Bag Q is 21 kilograms.

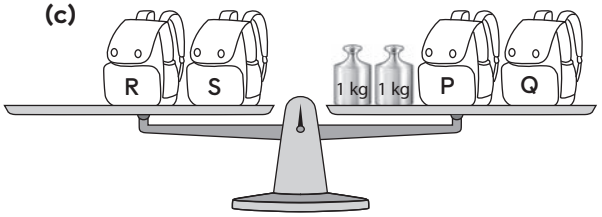
21 × 2 = 42
The mass of Bag R is 42 kilograms.

42 − 8 = 34
The mass of Bag P is 34 kilograms.

(b)

Bag R	Bag P	Bag Q	Bag S
heaviest			lightest

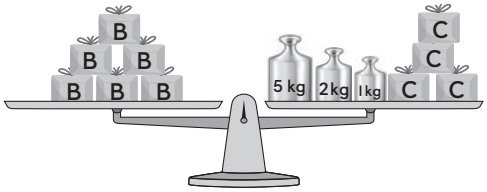
(c)



9. **(a)** No. We only know that the total mass of two Parcel C is the same as the total mass of three Parcel A and one Parcel B, which is 10 kg × 2 = 20 kg.

There is not enough information to find the mass of Parcel A (we do not have the mass of Parcel B).

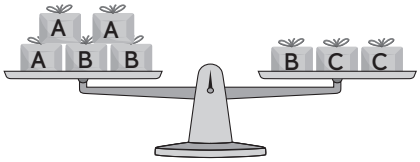
(b) From the diagram in **(b)**, we know that the total mass of six Parcel B is the same as the total mass of four Parcel C and 8 kg.



5 + 2 + 1 = 8
4 × 10 = 40
8 + 40 = 48
The total mass of four Parcel C and 8 kilograms is 48 kilograms.
This means that the mass of six Parcel B is 48 kilograms.

48 ÷ 6 = 8
The mass of one Parcel B is 8 kilograms.

From the diagram in **(a)**, we know that the total mass of three Parcel A and two Parcel B is the same as the total mass of one Parcel B and two Parcel C.



8 + 10 + 10 = 28
The total mass of one Parcel B and two Parcel C is 28 kilograms.

28 − 8 − 8 = 12
The total mass of three Parcel A is 12 kilograms.

12 ÷ 3 = 4
The mass of one Parcel A is 4 kilograms.

10. $\underbrace{\text{eraser + sharpener}}_{37\text{ g}}$

$\underbrace{\text{eraser + pencil}}_{44\text{ g}} + \underbrace{\text{pencil + sharpener}}_{17\text{ g}} = 44\text{g} + 17\text{ g}$

$\underbrace{\text{eraser + sharpener}}_{37\text{ g}} + \underbrace{\text{pencil + pencil}}_{?} = 61\text{ g}$

mass of 1 pencil + mass of 1 pencil = 61 g − 37 g
mass of 2 pencils = 24 g
mass of 1 pencil = 24 ÷ 2
= 12 g

The mass of the pencil is 12 grams.

Chapter 9 DATA

Exercise 9A Picture Graphs

1. **(a)** adventure **(b)** mystery
(c) 6 **(d)** 12
(e) 102

2. **(a)** 10 **(b)** 40
(c) 30 **(d)** 10
(e) 30 **(f)** poached eggs

3. **(a)**

Type of Bird	Tally	Number
Lory	𝍸 𝍸	10
Cockatoo	𝍸 𝍸 ||	12
Macaw	𝍸 |||	8
Toucan	𝍸 𝍸 ||	12

(b) **Birds in an Aviary**

Lory	5 birds
Cockatoo	6 birds
Macaw	4 birds
Toucan	6 birds

Key: Each bird represents 2 birds.

(c) 2 **(d)** 4
(e) cockatoos, toucans **(f)** 42

4. **(a)** **Kathy's Picture Graph**

Blue	3 students
Green	1 student
Orange	2 students
Red	4 students
Yellow	1 student

Key: Each ● represents 4 students.

(b) Accept all correct explanations. Example: I prefer Kathy's picture graph. It is easier to complete as I do not need to draw so many circles.

Exercise 9B Bar Graphs

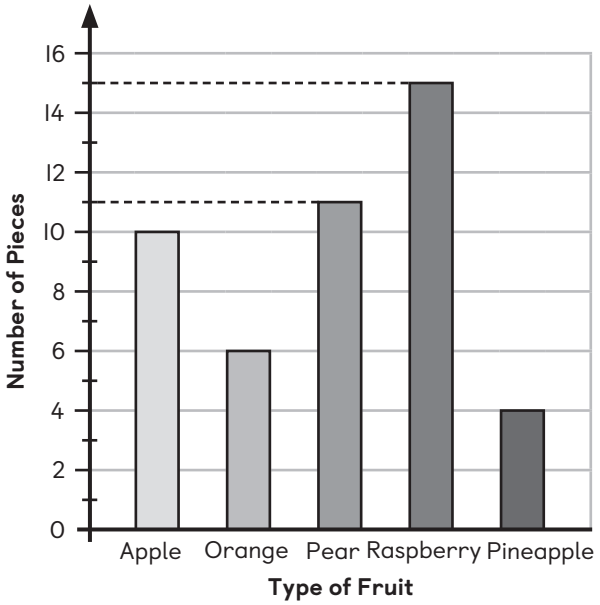
1. **(a)** 15 **(b)** Swimming
(c) Playing piano **(d)** 7
(e) 84

2. **(a)** March **(b)** January, April
(c) 4 **(d)** 2
(e) February

3. **(a)**

Fruit	Apple	Orange	Pear	Raspberry	Pineapple
Number of Pieces	10	6	11	15	4

(b)

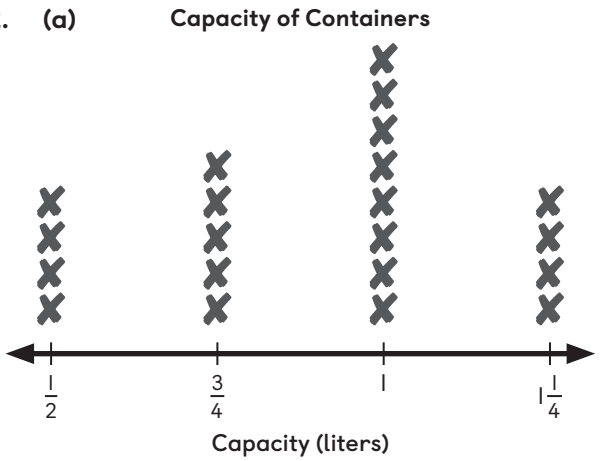


(c) 5 **(d)** 5
(e) 7 **(f)** 46

Exercise 9C Line Plots

1. **(a)** 4 **(b)** 1
(c) 4 **(d)** 6
(e) 14

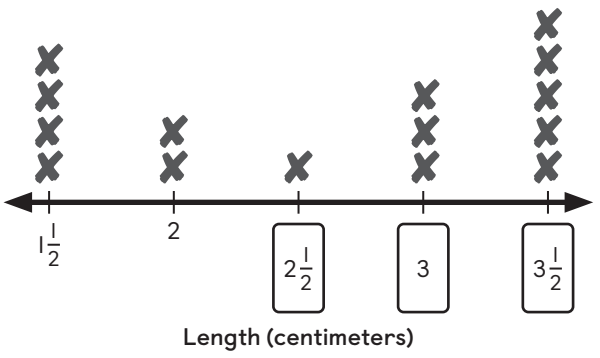
2. **(a)**



Key: Each ✖ represents 1 container.

(b) 5 **(c)** 1 **(d)** $1\frac{1}{4}$
(e) 12 **(f)** 21
(g) 8 + 1 = 9
9 − 4 = 5
Javier buys 5 $\frac{1}{2}$-liter containers.

3. **(a)**



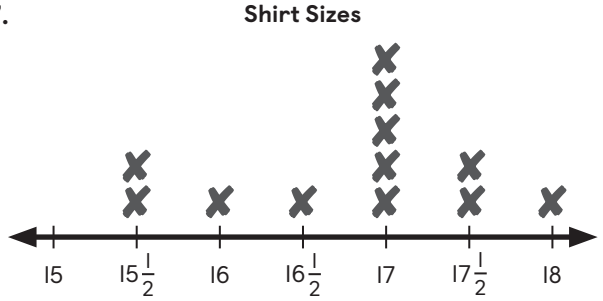
Key: Each ✖ represents 1 shape.

(b) $1\frac{1}{2}$, $3\frac{1}{2}$ **(c)** 4 **(d)** 6
(e) 15

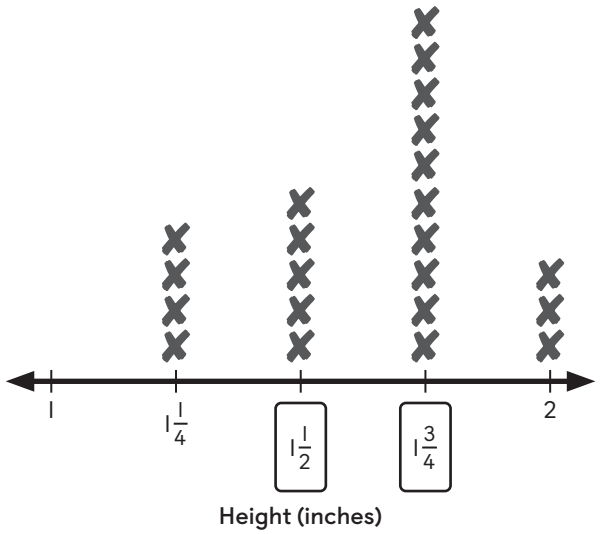
Chapter Practice

1. C
2. C
3. B
4. 3
5. 95
6. 20

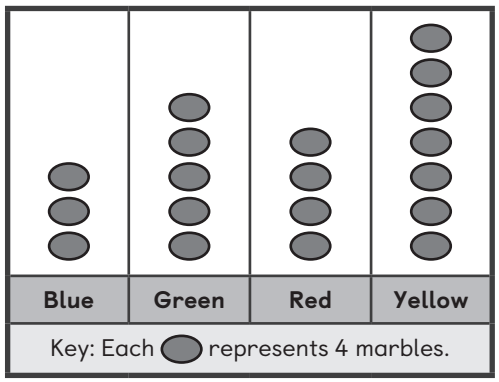
7.



8.



9. (a)



(b) $3 \times 4 = 12$
There are 12 blue marbles.

$7 \times 4 = 28$
There are 28 yellow marbles.

$12 + 28 = 40$
The total number of blue and yellow marbles is 40.

(c) $1 \times 4 = 4$

There are 4 more green marbles than red marbles.

(d) $28 - 12 = 16$

There are 16 fewer blue marbles than yellow marbles.

(e) $19 \times 4 = 10 \times 4 + 9 \times 4$
$= 40 + 36$
$= 76$

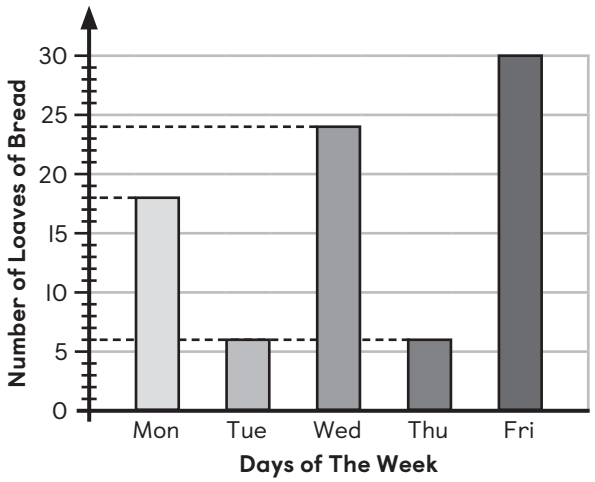
There are 76 marbles altogether.

10. (a) Wednesday

(b) Monday

(c) Tuesday, Thursday

(d)



(e) The data is better represented using the bar graph than the picture graph. It is easier to read off the values on the vertical axis of the bar graph compared to reading off values from a picture graph.

Chapter 10 SHAPES

Exercise 10A Angles and Shapes (I)

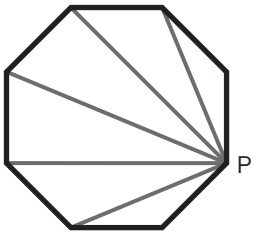
1.

Smaller than a right angle	Right angle	Larger than a right angle
c, d	*a, f*	*b, e*

2. **(a)** X **(b)** W **(c)** Y, Z

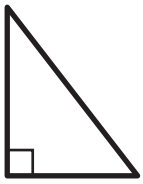
(d) X **(e)** 2

3. **(a)**



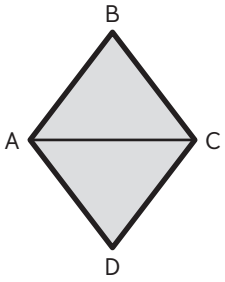
(b) 6 **(c)** 2 **(d)** 4

4. No. His shape cannot be a triangle since a triangle can only have at most one right angle.



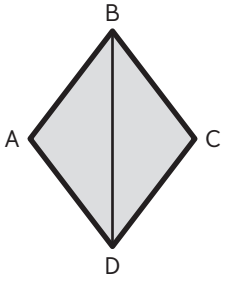
The other two angles in the triangle are smaller than a right angle.

5. **(a)**



The two triangles formed are of the same size.
All the angles in each triangle are smaller than a right angle.

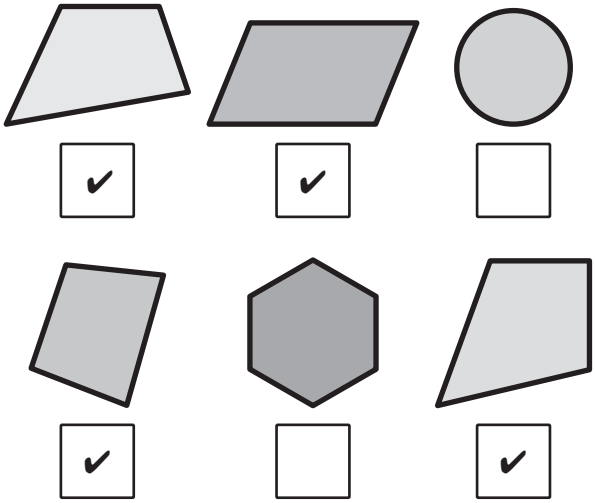
(b)



The two triangles formed are of the same size.
One of the angles in each triangle is greater than a right angle.

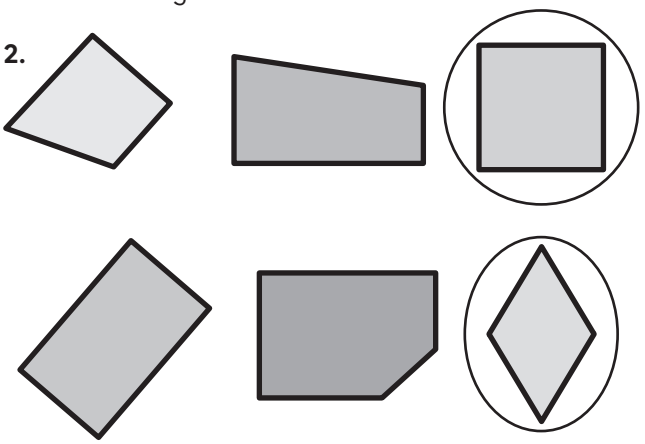
Exercise 10A Angles and Shapes (2)

1.



A quadrilateral has 4 sides and 4 angles.

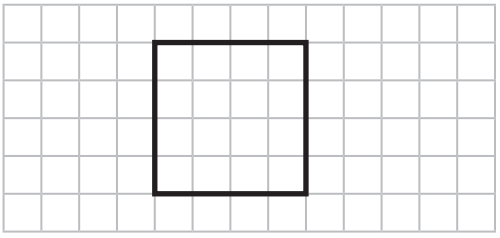
2.



3. **(a)** sides **(b)** right, sides

(c) square

(d)

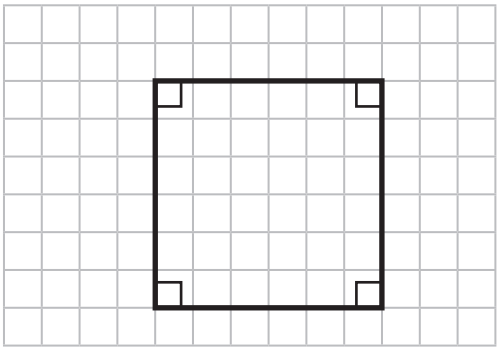


4. **(a)** D, F **(b)** A, B

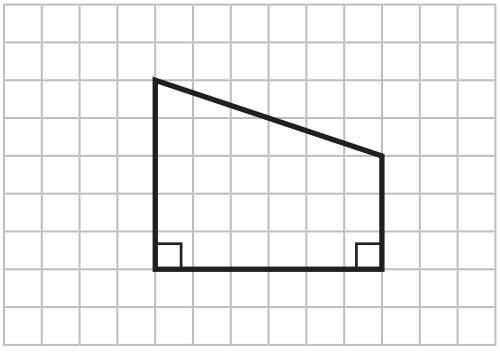
(c) 4 **(d)** E, right

(e) Figure B is not a rhombus as it does not have 4 equal sides.

5. **(a)** Accept all correct figures. Example:



(b) Accept all correct figures. Example:



Chapter Practice

1. B

2. B

3. A

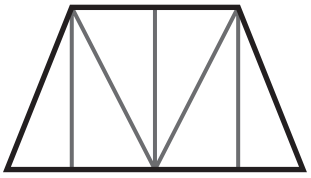
4. C

5. D

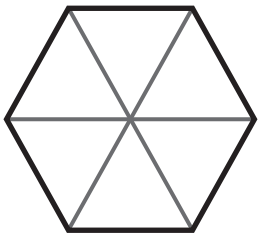
6. 4

7. I

8.

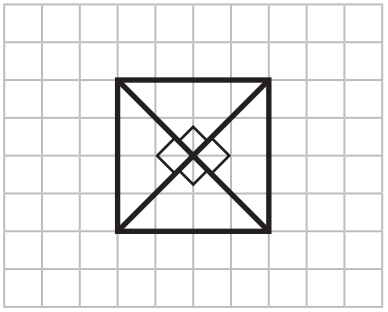


9.

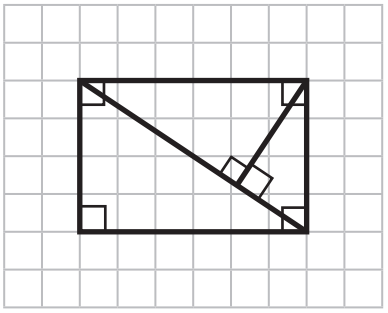


Each triangle has three angles that are smaller than a right angle.

10. **(a)** Accept all correct rhombuses. Example:



(b) The shape must be a rectangle.



11. Yes, I agree with Adella. I can partition any triangle to form right triangles by drawing a line from a vertex to the opposite side. Examples: