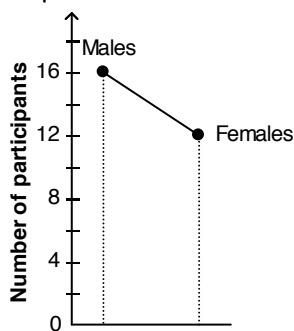


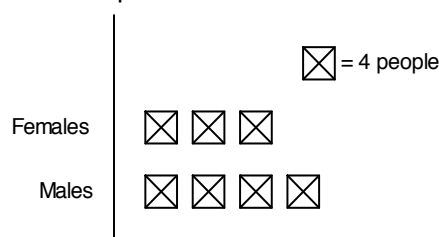
Chapter 1 – Representing Data & Chapter 11 - Probability

1. Dr. Shaban measured the height of his daughter every year from her birth to age 14.
To see the trend of growth in height, which type of graph would be appropriate to display the data?
 - a. Pictograph
 - b. Line graph
 - c. Bar graph
 - d. Circle graph
2. Raji recorded the colour of each car entering the school parking lot. To make statements about car colours, which type of graph would be appropriate to display the data?
 - a. Circle graph
 - b. Line graph
 - c. Bar graph
 - d. Scatter plot
3. These graphs show the number of males and females who took part in a survey.

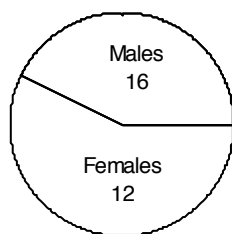
Graph A



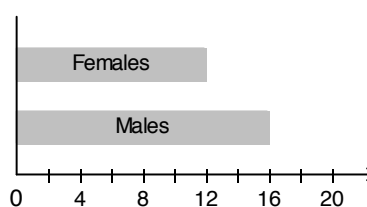
Graph B



Graph C



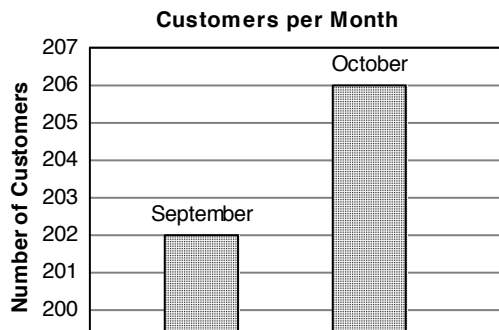
Graph D



Which graph would be the **least** suitable way to display the data?

- a. Graph A
- b. Graph B
- c. Graph C
- d. Graph D

4. This graph shows the number of customers buying from a store in September and October.



Is the graph misleading? If it is misleading, explain why.

- Yes, the bars do not touch.
 - No, the graph is not misleading.
 - Yes, the intervals on the vertical axis between 200 and 207 are not even.
 - Yes, the graph exaggerates the difference in the number of customers between September and October.
5. A lunch menu consists of 4 sandwiches and 5 drinks.
How many possible meals with a sandwich and a drink can you order?
- 9 meals
 - 20 meals
 - 14 meals
 - 23 meals
6. A coin is tossed and a regular 6-sided die labelled 1 to 6 is rolled.
What is the probability of tossing a head and rolling a 5?
- $\frac{1}{12}$
 - $\frac{1}{4}$
 - $\frac{2}{3}$
 - $\frac{1}{6}$
7. This table shows the colours of the 4 scarves, 3 pairs of gloves, and 2 hats that Tamara has.
Tamara randomly picks a scarf, hat, and a pair of gloves.
What is the probability of Tamara choosing a pair of black gloves and a red scarf?

Scarf	Gloves	Hat
Red	Black	White
White	Brown	Red
Brown	Red	
Black		

- $\frac{1}{16}$
- $\frac{1}{8}$
- $\frac{1}{12}$
- $\frac{1}{20}$

8. A coin is tossed 4 times. What is the probability of tossing 4 tails?

- a. 2 b. $\frac{1}{16}$ c. $\frac{1}{32}$ d. $\frac{1}{6}$

9. A spinner has 12 equal sectors. 4 sectors are coloured red, 3 are coloured blue, and 5 are coloured yellow. The pointer on the spinner is spun 3 times.

What is the probability of the pointer landing on red each time?

- a. $\frac{1}{27}$ b. $\frac{1}{4}$ c. $\frac{1}{3}$ d. $\frac{1}{144}$

10. Two sets of 6 cards are each numbered 1 to 6. One card is picked at random from each set. What is the probability of picking 2 numbers with a sum of 4?

- a. $\frac{1}{12}$ b. $\frac{1}{9}$ c. $\frac{1}{36}$ d. $\frac{1}{6}$

11. Two coins are tossed. What is the probability of tossing 2 tails?

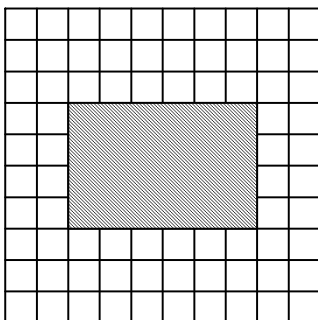
12. At a pizza parlor, choices for pizza topping are Garlic, Onion, and Sausage, and choices for size are Mini and Giant. Draw a tree diagram that shows all possible one-topping pizzas.

13. Two regular 6-sided dice, each labelled 1 to 6, are rolled. What is the probability of rolling 2 numbers that are the same?

14. A spinner is divided into 4 equal sectors of red, green, blue, and purple.
A regular 6-sided die labelled 1 to 6 is rolled and the pointer of the spinner is spun.
What is the probability of rolling a prime number and the pointer landing on purple

Chapter 2 – Rates, Rates and Proportional Reasoning & Chapter 4 - Understanding Percent

- Write 9% as a decimal.
 - 0.09
 - 0.9
 - 9
 - 0.009
- Write $\frac{6}{25}$ as a percent.
 - 18%
 - 4%
 - 12%
 - 24%
- Write 0.72 as a percent.
 - 7.2%
 - 0.72%
 - 72%
 - 0.072%
- The hundred chart represents 100%. What fraction of the chart is shaded? Write the fraction as a percent.



- $\frac{6}{25}$; 24%
 - $\frac{6}{19}$; 31.6%
 - $\frac{19}{25}$; 76%
 - $\frac{1}{5}$; 20%
- Write 175% as a decimal.
 - 1.175
 - 175
 - 1.75
 - 0.175
 - Find 274% of 70.
 - 39.14
 - 1918
 - 19.18
 - 191.8

7. The number of members in the Math Club is increased from 114 to 268. Find the increase as a percent.

- a. 176% b. 154% c. 135% d. 147%

8. Find the decrease in price as a percent. Round to the nearest percent.

Regular price: \$135

Sale price: \$83.00

- a. 39% b. 63% c. 6% d. 52%

9. Write the part-to-whole ratio 12:13 as a fraction.

- a. $\frac{13}{6}$ b. $\frac{12}{13}$ c. $\frac{6}{7}$ d. $\frac{7}{6}$

10. A student has 3 red counters and 10 blue counters on her desk.

What is the ratio of red counters to blue counters?

- a. 10:3 b. 3:10 c. 3:13 d. 10:13

11. Write the ratio 4:28 with first term 1.

- a. 1:24 b. 1:7 c. 1:25 d. 1:4

12. Find the value of the variable.

$$8:7 = p:56$$

- a. 64 b. 80 c. 72 d. 88

13. An astronaut who weighs 78 kg on Earth weighs only 13 kg on the Moon.

How much would a person who weighs 15 kg on the Moon weigh on Earth?

- a. 90 kg b. 52 kg c. 84 kg d. 96 kg

14. At an average speed of 34 km/h, how far will a car travel in 8 h?

- a. 26 km b. 272 km c. 4.25 km d. 280 km

15. A 25-L container of water costs \$18.75. What is the cost per litre?

- a. \$1.11/L b. \$7.5/L c. \$0.75/L d. \$2.22/L

16. Write 0.54% as a fraction and as a decimal.

17. Write 0.365 as a fraction and as a percent.
18. The population of a small town was 4800.
The population decreased by 5% one year then decreased by 15% the following year.
What was the town's population at the end of each year?
19. In a sample from a production line, 30 of 150 DVDs were faulty. What percent of the DVDs were faulty?
20. 130% of a number is 78. What is the number?
21. On a school trip, there are 11 boys, 13 girls, and 5 adults.
What is the ratio of boys to girls? Students to adults?
22. In one locker, 5 out of 6 mitts are baseball mitts.
In another locker, 7 out of 8 mitts are baseball mitts.
Both lockers contain the same number of mitts.
Which locker has more baseball mitts?
23. In one apple drink, the ratio of apple juice to water is 5:3.
In another apple drink, the ratio of apple juice to water is 7:5.
Which drink has higher apple juice content?

24. Sadiq types 110 words in 2 min. What is his unit rate of typing?
25. Trenton can type 350 words in 5 min.
At this rate, how long will it take him to type an essay of 490 words?
26. Car A travels 496 km in 8 h.
Car B travels 441 km in 7 h.
Which car has the greater speed? Explain.
27. Two stores sell the same model of a stereo with an original price of \$573.
Store A offers a 16% discount and Store B sells the stereo for \$458.40.
Which store gives the bigger percent discount? Justify your answer.
28. A bag contains red, green, and blue balls in the ratio 8:6:7.
- a) If there are 32 red balls, how many green balls and blue balls are in the bag? Show your work.
- b) What is the percent of red balls in the bag? Show your work.

Chapter 3 – Square Roots & the Pythagorean Theorem

1. Which of these numbers is not a perfect square: 121, 2, 100, or 4?

- a. 121 b. 2 c. 100 d. 4

2. Which of these numbers is a square number: 14, 49, 98, or 56?

- a. 14 b. 49 c. 98 d. 56

3. What is the side length of a square with area 25 cm^2 ?

- a. 5 cm b. 12.5 cm c. 6.25 cm d. 20 cm

4. Which 2 consecutive square numbers is 54 between?

- a. 53 and 55 b. 28 and 32 c. 49 and 64 d. 12 and 16

5. Find the sum of $4^2 + 9^2$.

- a. 52 b. 169 c. 97 d. 72

6. Find $\sqrt{25 \times 25}$.

- a. 25 b. 5 c. 625 d. 156.25

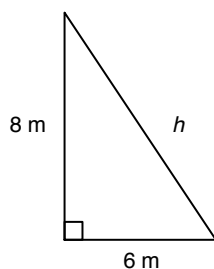
7. Between which 2 consecutive whole numbers is $\sqrt{111}$?

- a. 27 and 28 b. 110 and 112 c. 100 and 121 d. 10 and 11

8. Find the approximate side length of a square with area 27 cm^2 . Give your answer to 1 decimal place.

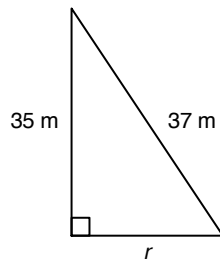
- a. 13.5 cm b. 6.8 cm c. 5.2 cm d. 3.7 cm

9. Find the length of the hypotenuse.



- a. 9 m b. 10 m c. 11 m d. 12 m

10. Find the length of the leg labelled r .



a. 39 m

b. 38 m

c. 12 m

d. 24 m

11. The area of a square is 149 m. Find its side length.

12. Find $\sqrt{49}$.

13. Is 5 greater than, less than, or equal to $\sqrt{32}$?

14. What whole number is $\sqrt{75}$ closest to?

15. Square A has area 10 cm^2 . Square B has area double that of square A.
What is the side length of square B? Give your answer to the nearest centimetre.

16. Kalsa wants to determine if her garden is a rectangle. The garden has side lengths 24 m and 10 m and diagonal length 26 m. Determine whether the garden is a rectangle.
17. A boat sails due south from a port at a steady speed of 9 km/h.
The wind blows the boat due west at a speed of 3 km/h. How far is the boat from the port after 1 h?
Give your answer to 1 decimal place.
18. A line segment joins points P(−1, −7) and Q(7, 3). Determine the length of PQ to 1 decimal place.

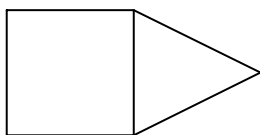
Chapter 5 – Surface Area & Chapter 7- Volume

Formulas :

$$A = \pi r^2 \quad A = B \times H$$

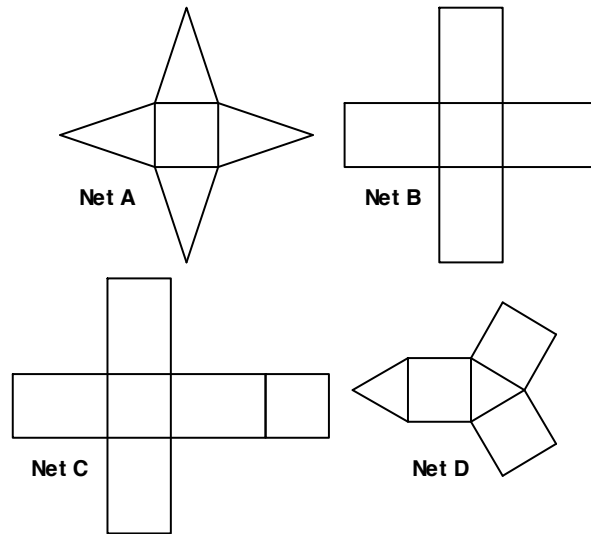
$$A = \frac{bh}{2} \quad c = 2\pi r \quad d = 2r$$

1. This is an incomplete net for a triangular prism. What shapes must you add to complete this net?



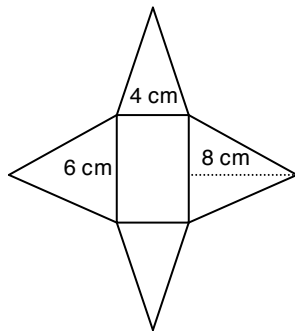
- a. 3 squares b. 1 triangle and 2 squares c. 1 triangle and 3 squares d. 3 triangles

2. Which diagram is the net for a square pyramid?



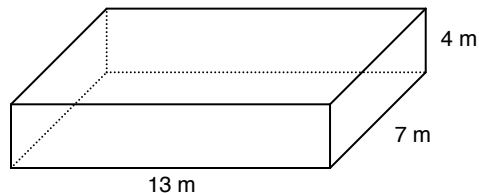
- a. Net A b. Net B c. Net C d. Net D

3. Name the polyhedron that can be formed from this net.



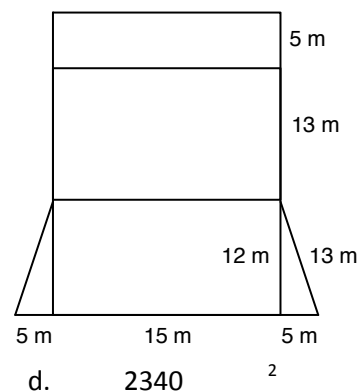
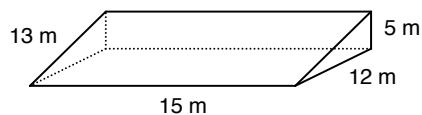
- a. Triangular prism c. Rectangular prism
b. Square pyramid d. Rectangular pyramid

4. The Drama Club plans to paint the outside walls of this box to be used as a second level to their stage. Find the surface area of the box.



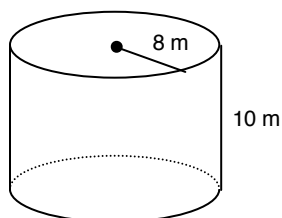
- a. 48 m^2 b. 342 m^2 c. 364 m^2 d. 171 m^2

5. Use the net to find the surface area of the right triangular prism



- a. 90 m^2 b. 585 m^2 c. 510 m^2

6. Find the surface area of this cylinder to the nearest square metre.

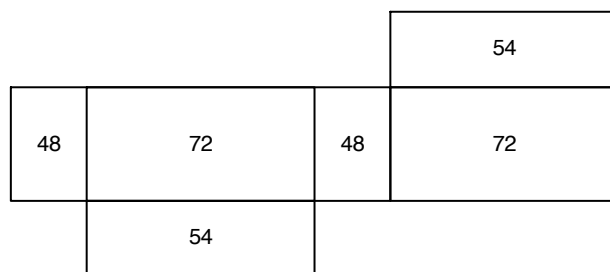


- a. 904 m^2 b. 704 m^2 c. 653 m^2 d. 452 m^2

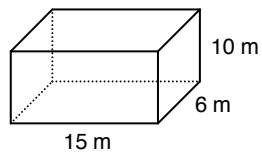
7. Draw a net for a cube and label the faces A, B, C, D, E, and F. When the cube is made, face A should be opposite face F, face B should be opposite face E, and face C should be opposite face D.

8. Sketch a net for a closed cylinder.

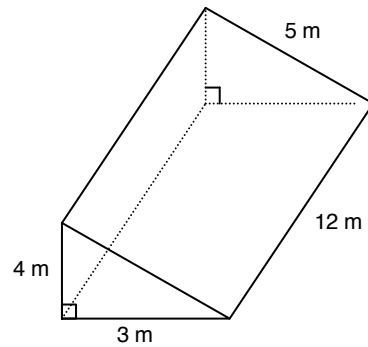
9. This is the net of a right rectangular prism. The area of each face, in square centimeters, is given. What is the surface area of the prism?



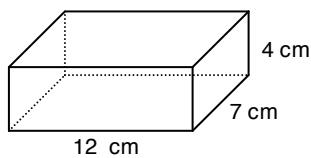
10. Identify all the faces of this prism by labeling the front, back, top, bottom, left and right sides.
Find the surface area of this right rectangular prism.



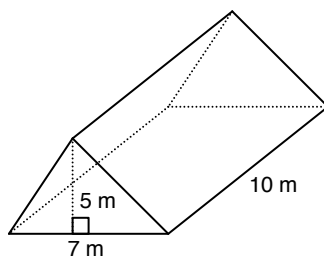
11. Label all the faces of the prism. Calculate the surface area of this right triangular prism.



12. Find the volume of this rectangular prism.



13. Find the volume of this triangular prism.

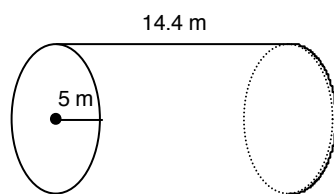


14. Explain the relationship between the area of a rectangular prism net and the surface area of a rectangular prism.

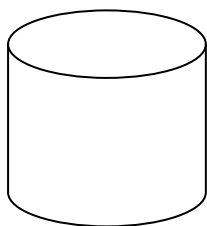
15. Find the volume of this prism. Explain how you were able to calculate the volume.



16. Find the curved surface area of this cylindrical tube.
Use $\pi = 3.14$ and round your answer to the nearest square metre.



17. Label the faces of the right cylinder below, include the measurements of the diameter and the height.
Find the volume of a cylinder with diameter 8 cm and height 4 cm.
Round your answer to the nearest cubic unit.



18. A large slab of chocolate measures 32 cm by 72 cm by 3 cm.

a) What is the volume of chocolate slab?

b) The chocolate slab is shared equally among 36 students.
How much chocolate does each student get?

19. A paper cup has the shape of a perfect cylinder that is 6.9 cm tall and 3 cm across.
Find the area of paper needed to make the cup.
Use $\pi = 3.14$ and give the answer to the nearest square centimetre.

Chapter 6 – Operations with Fractions

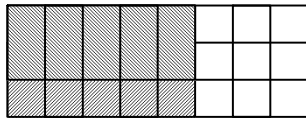
1. Multiply. $2 \times \frac{7}{12}$

a. $\frac{7}{24}$ b. $\frac{7}{6}$ c. $\frac{3}{4}$ d. $\frac{31}{12}$

2. Find $\frac{5}{8}$ of 24.

a. 3 b. $24\frac{5}{8}$ c. 120 d. 15

3. Write the multiplication equation represented by this diagram.



a. $\frac{2}{3} \times \frac{5}{8} = \frac{5}{12}$ c. $\frac{1}{3} \times \frac{5}{8} = \frac{5}{24}$
b. $\frac{3}{1} \times \frac{5}{8} = \frac{15}{8}$ d. $\frac{2}{3} \times \frac{10}{8} = \frac{5}{6}$

4. Find this product. $\frac{7}{8} \times \frac{8}{9}$

a. $\frac{15}{17}$ b. $\frac{7}{9}$ c. $\frac{5}{24}$ d. $\frac{4}{5}$

5. Which product does NOT equal 7?

a. $\frac{8}{9} \times \frac{72}{9}$ b. $\frac{1}{5} \times \frac{175}{5}$ c. $\frac{35}{42} \times \frac{42}{5}$ d. $\frac{42}{5} \times \frac{5}{6}$

6. The world's largest ruby crystal measures $12\frac{1}{4}$ cm \times $11\frac{1}{4}$ cm \times $13\frac{2}{5}$ cm.

Write the mixed numbers in these dimensions as improper fractions.

a. $\frac{49}{20} \times \frac{45}{20} \times \frac{67}{20}$ c. $\frac{49}{4} \times \frac{45}{4} \times \frac{67}{5}$
b. $\frac{67}{20} \times \frac{49}{20} \times \frac{45}{20}$ d. $\frac{67}{4} \times \frac{49}{4} \times \frac{45}{5}$

7. Find this quotient. $8 \div \frac{4}{7}$

a. 14

b. $\frac{32}{7}$

c. $\frac{1}{14}$

d. $\frac{7}{32}$

8. Steve's home is 3 km from school. This is $\frac{1}{3}$ the distance Mike's home is from school.
How far is Mike's home from school?

a. 9 km

b. 1 km

c. $3\frac{1}{3}$ km

d. $2\frac{2}{3}$ km

9. Find this quotient. $\frac{5}{3} \div \frac{15}{7}$

a. $3\frac{4}{7}$

b. $\frac{7}{9}$

c. $\frac{7}{15}$

d. $2\frac{2}{15}$

10. Divide. $\frac{3}{10} \div \frac{7}{6}$

a. $1\frac{4}{5}$

b. $\frac{7}{20}$

c. $\frac{9}{35}$

d. $2\frac{4}{7}$

11. Write $3\frac{5}{6}$ as an improper fraction.

a. $\frac{14}{6}$

b. $\frac{8}{6}$

c. $\frac{33}{6}$

d. $\frac{23}{6}$

12. Divide. $2\frac{1}{3} \div 2\frac{1}{2}$

a. $\frac{14}{15}$

b. $5\frac{5}{6}$

c. $\frac{2}{3}$

d. $1\frac{1}{14}$

13. Belinda gets $1\frac{3}{4}$ h for lunch. She spends $\frac{1}{3}$ of her lunch time walking for exercise.
How much time does Belinda spend walking?

a. $2\frac{1}{12}$ h

b. $1\frac{5}{12}$ h

c. $\frac{7}{12}$ h

d. $\frac{1}{2}$ h

14. How much money is $\frac{1}{5}$ of $\frac{1}{3}$ of \$840?

a. \$112

b. \$448

c. \$210

d. \$56

15. Sally pays \$600 per month for rent. This represents $\frac{2}{3}$ of her monthly salary.

What is Sally's monthly salary?

- a. \$400 b. \$1800 c. \$900 d. \$1200

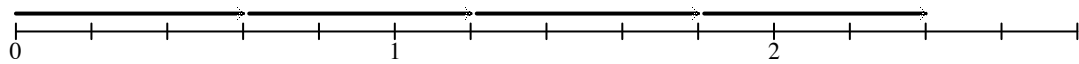
16. Evaluate. $\frac{2}{3} + \frac{3}{5} \times \frac{15}{4}$

- a. $2\frac{11}{12}$ b. $4\frac{3}{4}$ c. $1\frac{1}{4}$ d. $2\frac{1}{12}$

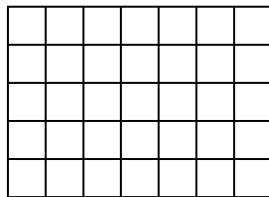
17. Evaluate. $\frac{3}{5} \div \frac{3}{5} - \frac{3}{5}$

- a. $\frac{3}{5}$ b. $\frac{2}{5}$ c. 0 d. 1

18. Write the multiplication equation represented by this number line.



19. Shade the rectangle to find this product. $\frac{2}{5} \times \frac{3}{7}$



20. Multiply: $\frac{7}{8} \times \frac{9}{7} \times \frac{8}{9}$

21. A juice bottle holds $\frac{3}{5}$ L of juice. How many bottles can be filled from a tank containing 12 L of juice?

22. Divide $\frac{12}{13}$ by its reciprocal.

23. It takes Rhonda $13\frac{1}{2}$ h to build a model. She worked on her model for $2\frac{1}{4}$ h each evening. How many evenings does it take her to finish her model?
24. Arlene ate $\frac{1}{5}$ and Eric ate $\frac{1}{6}$ of a box of candies. What fraction of the box of candies was left?
25. Kirsty completed $4\frac{2}{3}$ laps in 42 min during training. Assume that Kirsty ran at a steady speed. How long did she take for each lap?
26. Evaluate. $\frac{7}{8} + \left(\frac{3}{4} - \frac{1}{8}\right) \times \frac{4}{5}$

Chapter 8 – Integers



This tile models +1.



This tile models -1.

- Jon gave Alicia 5 sets of 10 (+1)-tiles. How many, and in what colour, are the tiles that Alicia received?
 - 15 black tiles
 - 50 black tiles
 - 15 white tiles
 - 50 white tiles
- Find the product $(+5) \times (-9)$. Use a number line if necessary.
 - 45
 - +45
 - +14
 - 4

3. Find the product $(-7) \times (+4)$. Use a number line if necessary.

- a. 28 b. -28 c. 3 d. -3

4. Find the product of -4 and -7.

- a. -11 b. -28 c. +28 d. +11

5. Find the product of -10 and +3.

- a. +13 b. +30 c. -7 d. -30

6. Replace \square with an integer to make the equation true.

$$\square \times (-5) = -30$$

- a. +6 b. -6 c. 25 d. +25

7. Replace \square with an integer to make the equation true.

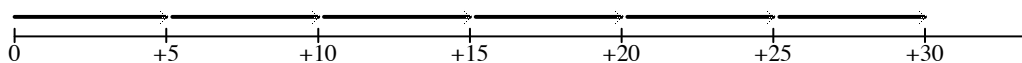
$$(+30) \times \square = 150$$

- a. +5 b. -5 c. -120 d. +120

8. Find this product. $(-14) \times (+11)$

- a. -25 b. -3 c. -154 d. +154

9. Write the integer division modeled by this number line.



- a. $(+30) - (+6) = +24$ c. $(+30) - (+5) = +25$
b. $(+30) = (+5)(+6)$ d. $(+30) \div (+5) = +6$

10. Evaluate. $24 + 4(-7)$

- a. 52 b. -4 c. -196 d. 21

11. Evaluate. $9 + (-7) - (-4)$

- a. 6 b. -2 c. 12 d. 20

12. Evaluate. $(-6)[(-3) + 9]$

a. 72

b. -36

c. -72

d. 27

13. An arctic air current moved into the town of Iceville. The initial temperature was 29 degrees C. The cold air caused the temperature to fall 4 degrees C each hour. What was the temperature after 8 h?

14. Use the integers -18, +6, -3 to write 2 different division equations.

15. The water level in a pool dropped 80 mm each hour. The total drop in water level was 480 mm. How long did it take for the water level to change?

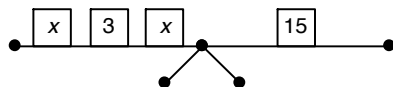
16. Evaluate. $(5^2) - (5)^2$

17. Evaluate. $\frac{9(-8) \div 2(-3)}{2(-3)}$

18. Evaluate. $[5 - 2(-9)] \times [(-2)(-9) - 23]$

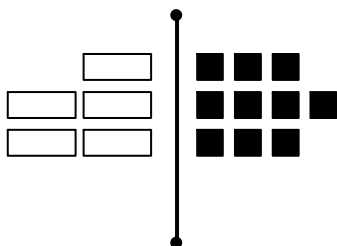
Chapter 9 - Linear Relations & Chapter 10 – Solving Linear Equations

1. Use this balance-scales model to solve for x .



- a. 9 b. 10 c. 6 d. -9

2. A black square represents -1 and a white rectangle represents the variable x . Find the value of x .



- a. -12 b. 2 c. -8 d. 2

3. Solve this equation. $3x + 11 = 23$

- a. 9 b. 4 c. 11 d. 4

4. Solve this equation. $4y + 8 = 36$

- a. 1 b. 3 c. 7 d. 24

5. Solve this equation. $20 - 3x = 14$

- a. 2 b. -2 c. 3 d. -3

6. Solve this equation. $\frac{t}{-2} - 7 = 16$

- a. 46 b. -25 c. 30 d. 21

7. Which statement is correct?

- i) $-3(-x + 4) = 3x + 12$
 ii) $-3(-x + 4) = -3x - 12$
 iii) $-3(-x + 4) = -3x + 12$
 iv) $-3(-x + 4) = 3x - 12$

- a. iii b. i c. ii d. iv

8. The price of an electronic puzzle was reduced by \$7.
Mr. Murray bought 10 puzzles for his relatives. The total cost before taxes was \$130.
What was the original price of the puzzle?

a. \$7.65 b. \$20.00 c. \$6.00 d. \$127.00

9. Solve this equation: $4 + 2(x + 5) = 10$

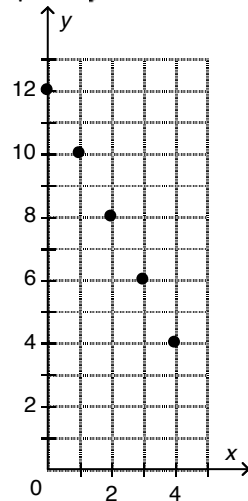
a. $-\frac{10}{3}$ b. -2 c. $\frac{1}{2}$ d. -4

10. The ordered pair (, 5) is in the linear relation with equation $y = 3x - 4$.
Find the missing number in the ordered pair.

a. 3 b. $\frac{1}{3}$ c. 6 d. -6

11. Describe the relationship between the variables x and y in this graph.

Graph of $y = -2x + 12$



- a. When x increases by 1, y decreases by 12.
b. When x increases by 1, y decreases by 2.
c. When x increases by 1, y increases by 2.
d. When x increases by 2, y increases by 12.

12. Which relations have graphs that are lines going up to the right?

- i) $y = -5x + 3$
ii) $y = 5x + 3$
iii) $y = -5x - 3$
iv) $y = 5x - 3$

a. ii and iv b. i and iii c. ii d. i, ii, and iv

13. Solve this equation. $-5x + 4 = 34$

14. Verify that 5 is a solution of this equation: $6y - 7 = 23$ Explain your method.

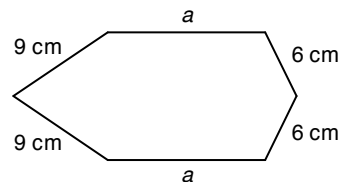
15. Sean paid \$81 to rent a boat to go fishing. The rental rate was \$25 plus \$8 per hour.
For how many hours did Sean rent the boat?
Write an equation, then solve the problem.

16. Solve this equation. $\frac{t}{-8} + 3 = 16$

17. Solve this equation. $-9 + \frac{y}{5} = 8$

18. The perimeter of a rectangle is 46 cm. The rectangle has length 13 cm.
Write an equation to find the width, w , that involves the distributive property.
Solve the equation.

19. This hexagon has a perimeter of 52 cm. What is the length of the side marked a ?



a) Write an equation to find the length of side a that involves the distributive property.

b) Solve the equation and answer the question.

20. The price of a medium pizza is \$15, plus \$3 for each topping. An equation for this relation is $c = 15 + 3t$, where t represents the number of toppings and c represents the cost of the pizza in dollars.

a) Complete this table of values for the relation.

Number of Toppings, t	0	2	4	6	8
Cost, c (\$)					

b) Find the cost of a pizza with 8 toppings.

21. Carmel used the distributive property to solve this equation: $4(-x + 3) = 19$
Here's her work.

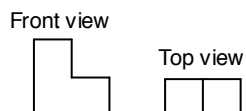
$$\begin{aligned}
 4(-x + 3) &= 19 \\
 -4x + 3 &= 19 \\
 -4x + 3 - 3 &= 19 - 3 \\
 -4x &= 16 \\
 x &= -4
 \end{aligned}$$

a) Check Carmel's work. Is her solution correct?

b) If your answer is yes, verify the solution. If your answer is no, describe the error, then correct it

Chapter 12 - Tessellations

1. An object is made using 3 linking cubes. The diagram shows 2 views of the object.
Draw the right side view of the object.



a.



b.



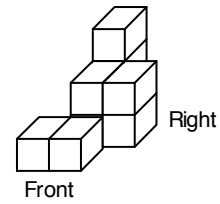
c.



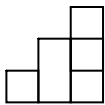
d.



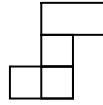
2. This object is made using linking cubes. Draw the top view of this object.



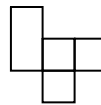
a.



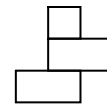
b.



c.

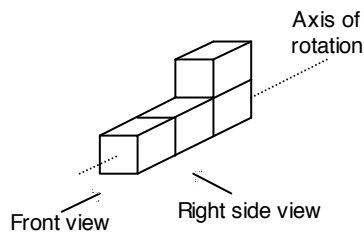


d.

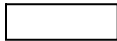


3. This object is built using 4 linking cubes.

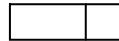
The object is rotated vertically 90 degrees clockwise about the axis shown.
Draw the right side view of the object after the rotation.



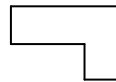
a.



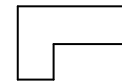
b.



c.

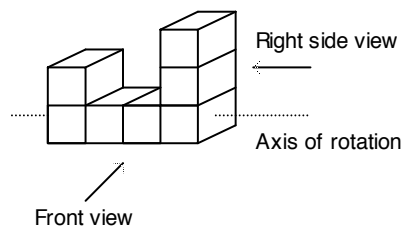


d.

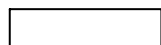


4. This object is built using 7 linking cubes.

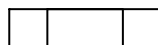
The object is rotated vertically 90° away from you about the axis shown.



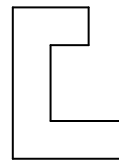
Which view is the front view of the object after the rotation?



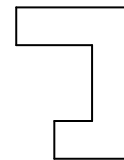
View K



View L

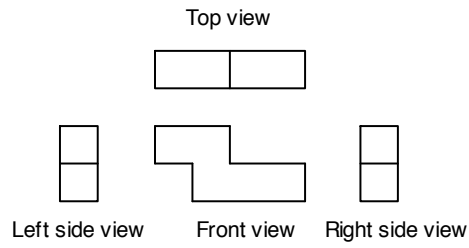


View M

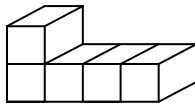


View N

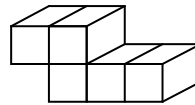
- a. View K b. View L c. View M d. View N
5. These are views of an object built using linking cubes. Sketch the object.



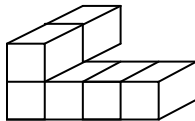
a.



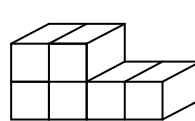
c.



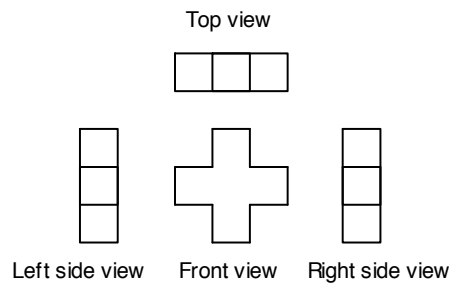
b.



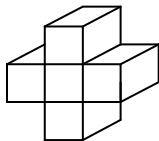
d.



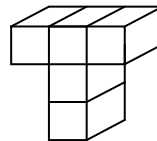
6. These are views of an object built using linking cubes. Sketch the object.



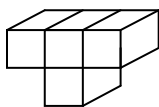
a.



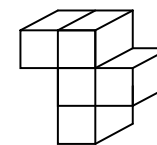
c.



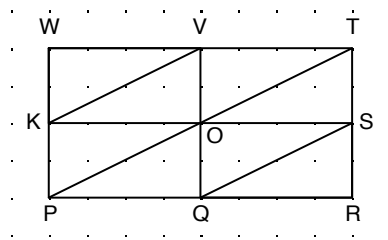
b.



d.

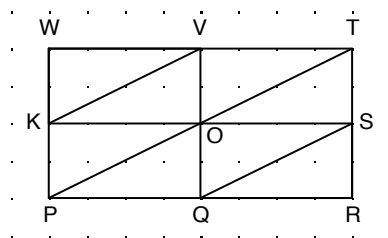


7. Triangle OQS is a transformation image of Triangle WKV. Describe the transformation.



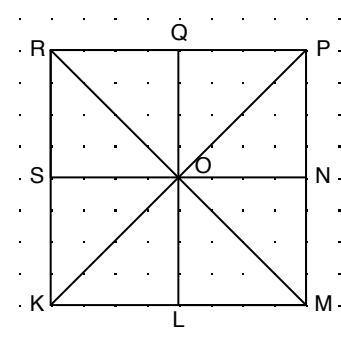
- Translation 4 units right and 2 units down
- Translation 2 units right and 4 units down
- 180 degree rotation about O
- 90 degree clockwise rotation about O

8. Name the image of Triangle VOT after a rotation of 180° about O.



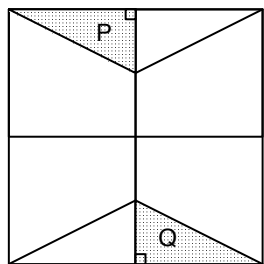
- Triangle WKV
- Triangle SOT
- Triangle RSQ
- Triangle QOP

9. Triangle MOL is a transformation image of Triangle PON. Describe the transformation.



- Reflection in the line SN
- Reflection in the line RM
- 90 degree clockwise rotation about O
- 90 degree counterclockwise rotation about O

10. Triangle Q is the image of Triangle P after a combination of 2 transformations.

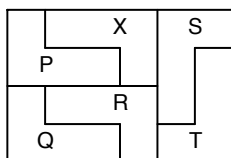


Which combination of transformations will NOT transform Triangle P to Triangle Q?

- i) Translation and reflection
- ii) Translation and rotation
- iii) Reflection and rotation
- iv) Reflection and reflection

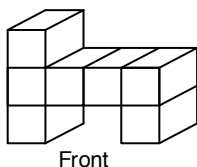
- a. i b. ii c. iii d. iv

11. What shapes in this diagram can be obtained by a rotation of Shape X?



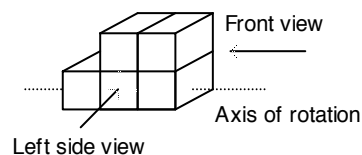
- a. P and S
- b. Q, S, and T
- c. P, Q, S, and T
- d. P, Q, R, S, and T

12. This object is made using 7 linking cubes. Sketch the top, front, and right side views of the object.



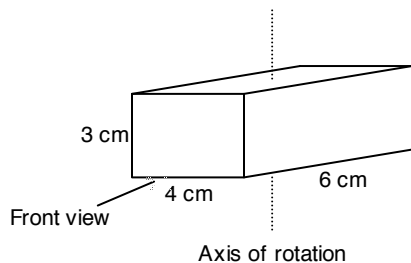
13. This object is built using 5 linking cubes.

The object is rotated vertically 90 degrees clockwise about the horizontal axis shown.

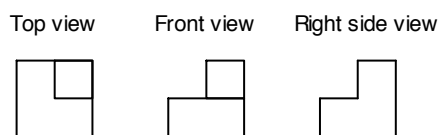


Draw the top, left side, and front views of the rotated object.

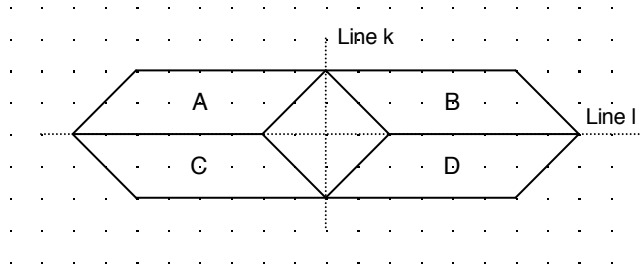
14. This rectangular prism is given a horizontal rotation of 90 degrees clockwise about the vertical axis shown. Draw the top, left side, front, and right side views of the rotated prism. Label the dimensions.



15. These are the top, front, and right side views of an object built using linking cubes. Sketch a 3-D picture of the object.



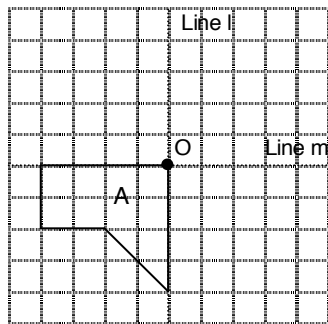
16. Use this diagram to identify each transformation.



- a) Shape D is the image of Shape B. _____
- b) Shape D is the image of Shape A. _____
- c) Shape D is the image of Shape C. _____

17. a) Draw the image of Shape A after each transformation.

- i) Shape B is the image after a reflection in Line l.
- ii) Shape C is the image after a rotation of 90° clockwise about point O.
- iii) Shape D is the image after a rotation of 180° about point O.

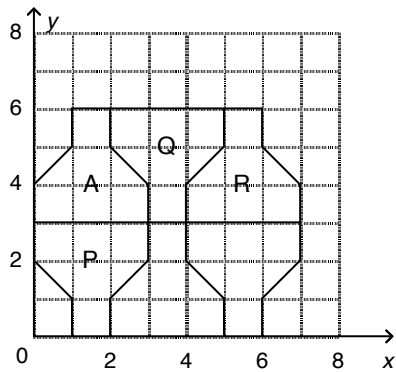


b) Describe a single transformation that will transform Shape D to Shape C.

18. Draw the 4th tile in this tessellation.



19. In this tessellation, Shape A is the original shape.



Describe possible transformations of Shape A that will produce:

a) Shape P

b) Shape Q

c) Shape R