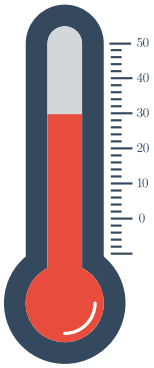
MATHSPACE

Task: Year 7 Diagnostic Pre-Test

1. Evaluate $42 \div 6$.

2. What is the temperature recorded by this thermometer?



☐ degrees

3. The following questions are all about adding two even numbers together.

   a. What is $6 + 8$?

   b. What is $8 + 12$?

   c. What is $12 + 6$?

   d. Where the answers to the last three questions odd or even?

   (A) Even (B) Odd

   e. This happens all of the time. In fact, every time we add two even numbers together, the answer is always even!
   So, Which of the following pairs of numbers will be even when added together?
   Select all correct answers.

   (A) $42 + 63$ (B) $84 + 46$
   (C) $63 + 46$ (D) $84 + 42$

4. Write the number described as having only:
   2 ten thousands, 69 hundreds and 32 units.

5. Fill in the blank to find an equivalent fraction to $\frac{1}{2}$:

$$\frac{1}{2} = \frac{\square}{6}$$

6. Write $\frac{1}{20}$ as a decimal by following these steps.

a. Firstly, write $\frac{1}{20}$ as a fraction out of 100.

$$\frac{1}{20} = \frac{\square}{100}$$

b. Now use the answer from part (a) to write $\frac{1}{20}$ as a decimal.

7. Pauline has $\$316$ saved in her bank account. She wishes to buy her sister a birthday present. The table shows a list of four items she is choosing between. If she chooses to buy the swimsuit, how much will Pauline have left in her bank account?

Item	Cost
backpack	$\$73.50$
Playstation game	$\$65.30$
swimsuit	$\$41.20$
wrist watch	$\$86.80$

8. Complete the following pattern.

a.

2	6	18	$\square$	$\square$

b. Complete the following sentence:
To fill in the pattern, we multiply by $\square$ each time.

9. A pot of flowers has 6 of the same type of flower in it.
This type of flower grows 10 petals.

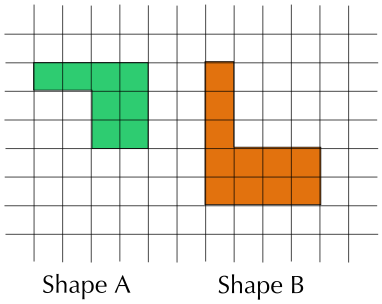
a. Write a multiplication number sentence for this word problem.

b. How many petals are there altogether?

10. A film clip started to be played at $2{:}41$ PM and finished at $3{:}16$ PM. How long is the film clip?

$\square$ minutes

11. Look at the two shapes laid on the grid.
Each grid square represents one metre squared ($1\ m^2$).



a. Fill in the gaps below.

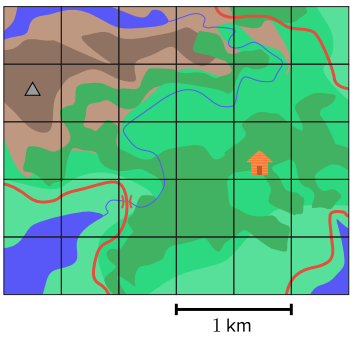
The area of Shape A is ☐ m^2.

The area of Shape B is ☐ m^2.

b. Which is the smallest shape?

(A) Shape A (B) Shape B

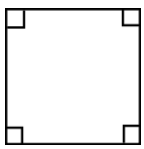
12. According to the scale given on the map, what is the actual distance from the mountain (triangle) to the house?

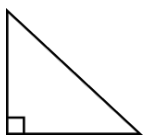


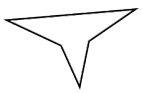
(A) 5.1 km (B) 4.2 km

(C) 4 cm (D) 2.1 km

13. How many right angles are there inside the following shapes?

a. 

b. 

c. 

14. Deborah owns 6 red shirts and 5 blue shirts.
She randomly chooses a shirt for the day, and she gets a red shirt.
At the end of the day, she puts it into the washing basket.

a. Will this affect the chances of choosing a red shirt tomorrow?

(A) No (B) Yes

b. Will this affect the chances of choosing a blue shirt tomorrow?

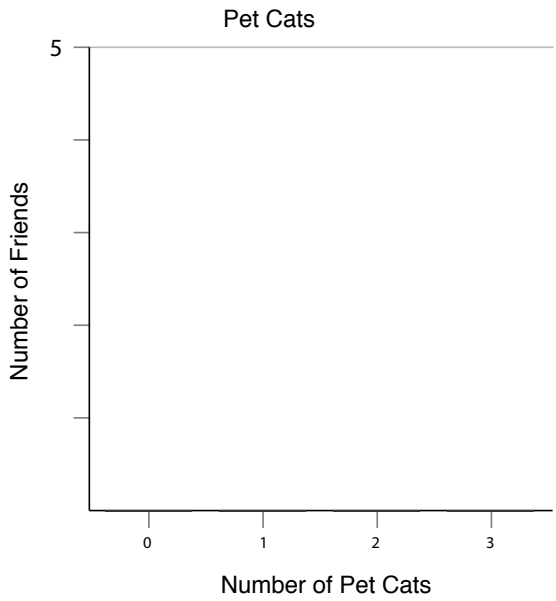
(A) Yes (B) No

15. Beth asks her friends how many cats they have at home. She puts all the information in the following table.

Number of Cats	Number of Friends
0	4
1	2
2	1
3	3

a. Beth wants to draw a column graph of this information.
How many columns will she need to draw?

b. Draw the column graph that matches the table of information.



16. A cake store sells cupcakes in boxes of eight.

a. If the store made 69 cupcakes, how many boxes can they sell?

b. How many cupcakes are left over?

17. Think about the fractions $\frac{1}{4}$ and $\frac{1}{5}$.

a. Plot $\frac{1}{4}$ on the number line.

b. Plot $\frac{1}{5}$ on the number line.

c. The two numbers can be shown on the same number line like this:

Which number is smaller?

(A) $\frac{1}{5}$ (B) $\frac{1}{4}$

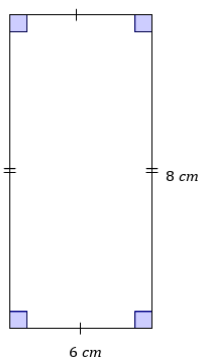
18. Arrange the following decimals in descending order:
2.203, 2.302, 2.32, 2.23, 2.023

$\square, \square, \square, \square, \square$

19. Complete the following number sentence:

$48 \div 8 = 42 \div \square$

20. Look at the picture of the rectangle and answer the following questions.

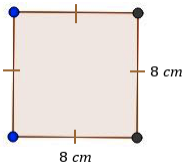


a. What is the perimeter of this rectangle?

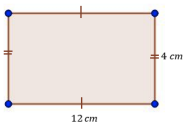
b. What is the area of this rectangle?

c. Select all the shapes that have the same area as this rectangle. (Shapes not to scale)

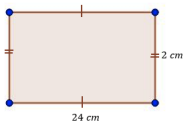
A



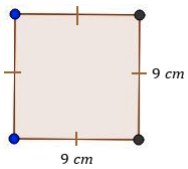
B



C



D



21. Lisa works at her local fish and chip shop and is paid $\$13.79$ an hour. If she is paid for 3 hours but spent $\$8.40$ on lunch, how much money did she take home?

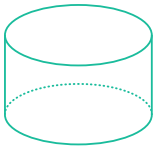
22. Which unit is best to measure the distance from Perth to Sydney?

A Metres B Kilometres C Centimetres D Millimetres

23. Convert $14{:}30$ into 12-hour time.

$\square$: $\square$ p.m.

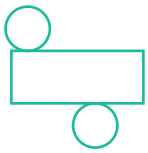
24. Consider the following diagram of a solid.

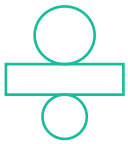


a. What is the name of the 3D solid in this diagram?

A Square Prism B Cone C Cylinder D Triangular Pyramid

b. Which of the following is a net of the given solid?

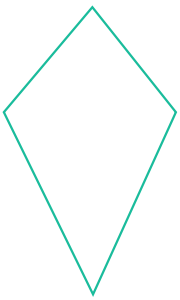
A 

B 

C 

D 

25. How many lines of symmetry does this figure have?



26. The small rectangle has been made three times as long and three times as wide to make the large rectangle.
How many of the small rectangles fit in the large rectangle?

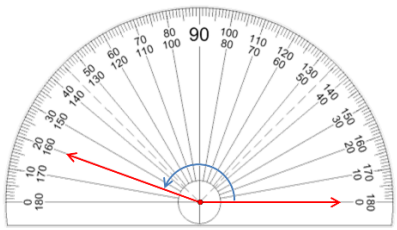
A 6

B 3

C 9

D 12

27. What is the obtuse angle shown on the protractor?



28. Which of these events has a probability closest to 0.9?

A You will score 110% on the next maths test.

B You'll fly a rocket to school.

C You will flip tails in a coin toss.

D It will rain somewhere in Australia tomorrow.

29. Mr Brown asks his students how many siblings they have. He writes their response on the board. Here is what he wrote:

1, 1, 1, 2, 2, 1, 0, 3, 0, 1, 2, 1, 1, 2, 2, 3, 1, 2, 3, 3, 1, 2, 2, 1, 2

Count how many students said zero, one, two or three siblings and record the result in the table.

Number of Siblings	Number of Students
Zero	
One	
Two	
Three	

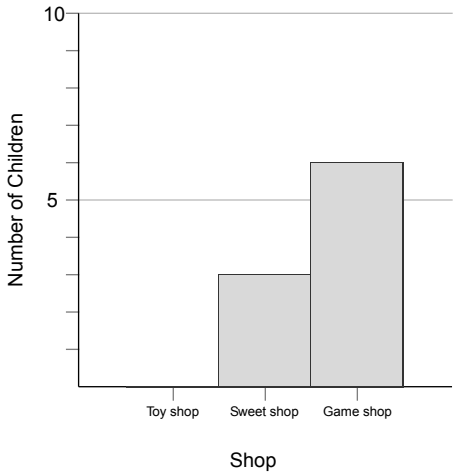
30. A group of children are going to the shops and are deciding which shop to visit first. This table shows the shops the children like best.

Shop	Number of Children
Toy shop	
Sweet shop	
Computer game shop	

Where  represents 1 child.

a. How many more children like toy shops than sweet shops?

b. Complete the column graph to make the graph below show the same data as the table.



31. Sophia asks her friends what they like to eat when they go out with their family. She puts her results in the following table.

Food	Number of Friends
Hamburger	8
Taco	2
Icecream	9
Kebab	1

a. How many friends did Sophia ask?

b. Which food do Sophia's friends like the least?

(A) Icecream (B) Kebab (C) Taco (D) Hamburger

32. What is $\frac{1}{9}$ of 54 metres?

33. Let's estimate the solution to 36×26 by rounding the digits first.

a. Rewrite the calculation but use rounded numbers to the nearest 10.

$\square \times \square$

b. Calculate 40×30.

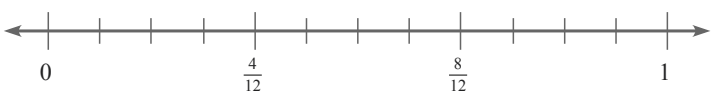
c. Is 1200 going to be larger or smaller than the actual result of 36×26?

(A) Small (B) Larger

34. We are going to compare the two fractions $\frac{10}{12}$ and $\frac{2}{3}$.

a. Turn $\frac{2}{3}$ into an equivalent fraction in twelfths.

b. Now plot $\frac{10}{12}$ and $\frac{2}{3}$ on the numberline:



c. Which fraction is larger?

(A) $\frac{2}{3}$ (B) $\frac{10}{12}$

35. A milk bottle has one half left. If Sean drinks one sixth of the total amount the bottle can hold, how much milk is left in the bottle? Leave your answer as a fraction.

36. Find $16.39 + 51.87 - 9.23 + 3.81$ giving your answer as a decimal.

37. Evaluate 2.678×4

38. Consider the following pattern.

a. What is the rule for finding the next number in the pattern?

$\frac{4}{10}$	$\frac{9}{10}$	$1\frac{4}{10}$	$\square\frac{\square}{\square}$	$\square\frac{\square}{\square}$	$\square\frac{\square}{\square}$

(A) The numbers are increasing by $5\frac{1}{10}$.

(B) The numbers are increasing by 5.

(C) The numbers are increasing by $\frac{5}{10}$.

(D) The numbers are increasing by $\frac{5}{100}$.

b. Now complete the pattern.

$\frac{4}{10}$	$\frac{9}{10}$	$1\frac{4}{10}$	$\square\frac{\square}{\square}$	$\square\frac{\square}{\square}$	$\square\frac{\square}{\square}$

39. Match the numbers 9, 2, 70 and 3 to the correct description in the following table

An odd composite number.	$\square$
A number that has a factor of 5.	$\square$
A factor of 21.	$\square$
An even prime number.	$\square$

40. Convert the percentage 39.5% to a fraction. Express your answer in simplest form.

41. A store is offering a 25% discount on all goods. Mohamad purchases a fridge whose original price is $\$600$ and a stove whose original price is $\$880$.

a. Without a discount, how much would Mohamad have to pay altogether?

b. What total discount amount did Mohamad receive?

c. How much did Mohamad pay for the goods after discount?

42. Evaluate $49 - (27 + (28 \div 4))$

43. I travelled 7.71 km on Wednesday and 1291 m on the day after. How many kilometres did I travel in two days?

44. A rectangle has an area of 64 m^2.
Which of the following shapes also has this area? Choose all that are correct.

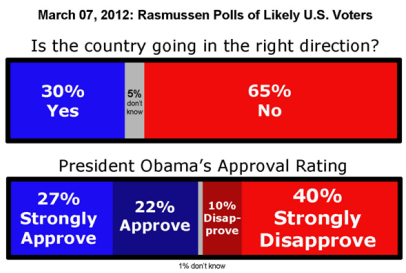
(A) A square with a perimeter of 32 m.

(B) A rectangle with a perimeter of 40 m and a length of 14 m.

(C) A rectangle with a perimeter of 40 m and a length of 16 m.

(D) A square with a perimeter of 16 m.

45. Refer to the graphs to answer the following questions.



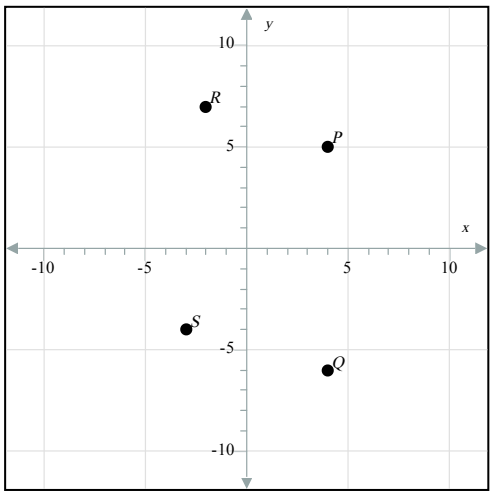
a. Do the majority of US voters believe the country is going in the right direction?

(A) Yes (B) No

b. What percentage of US voters have a belief about whether the country is going in the right direction?

c. What percentage of US voters either disapprove or strongly disapprove of Obama?

48. Find the points that have the given coordinates.



a. $(-4, -6)$.

A *P* B *Q* C *R* D *S*

b. $(-3, -4)$.

A *P* B *Q* C *R* D *S*

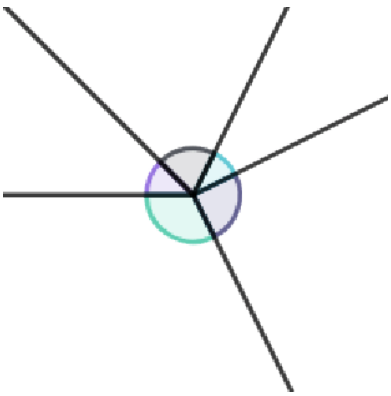
c. $(4, 5)$.

A *P* B *Q* C *R* D *S*

d. $(-2, 7)$.

A *P* B *Q* C *R* D *S*

49. Which of the following is the correct fact about angles at a point?



A Angles at a point add up to $90°$.

B Angles at a point add up to $360°$.

C Angles at a point add up to $180°$.

d. Which is greater?

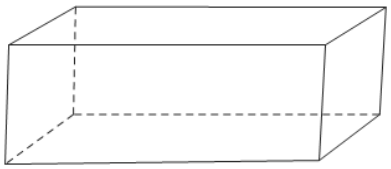
A The proportion of US voters whom strongly approve or strongly disapprove of Obama

B The proportion of US voters whom disapprove or strongly disapprove of Obama

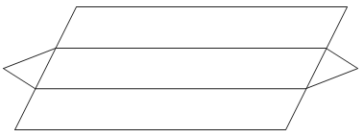
C The proportion of US voters whom approve or strongly approve of Obama

46. A jug has a volume of 14169 cm^3. How many litres of orange juice can it hold?
Give the exact answer.

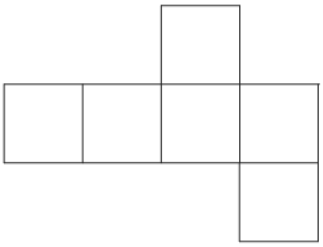
47. What net does this shape make?



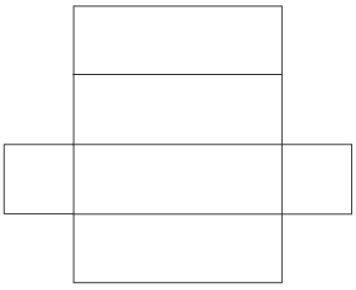
A



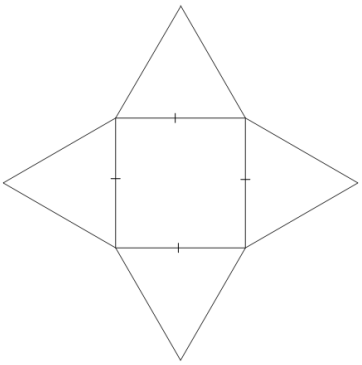
B



C



D



50. Emma and Tina want to go to the cinema to see *Hidden Figures*. They have arranged to meet at 8 a.m. at the cinema on Albert Road.

Journeys toward Albert Road

Bus Stop	Time (a.m.)					
Riley St	4:27	5:34	6:28	7:29	8:30	9:29
Rutland St	4:33	5:43	6:35	7:35	8:37	9:36
Lacey Rd	4:44	5:51	6:43	7:46	8:46	9:43
Albert Rd	4:54	5:57	6:54	7:53	8:57	9:54

Journeys from Albert Road

Bus Stop	Time (p.m.)					
Albert Rd	1:27	2:30	3:28	4:29	5:27	6:28
Lacey Rd	1:33	2:39	3:35	4:35	5:34	6:35
Rutland St	1:44	2:47	3:43	3:46	5:43	6:42
Riley St	1:54	2:53	3:54	4:53	5:54	6:53

a. Emma lives 10 minutes from the bus stop at Riley Street. What is the latest time she can leave her house to get to Albert Road on time?

Time = ☐ : ☐ a.m.

b. Tina lives 6 minutes from the bus stop at Lacey Road. What is the latest time she can leave her house to get to Albert Road on time?

Time = ☐ : ☐ a.m.

c. Emma must be home by 4:45 p.m. If *Hidden Figures* runs for 90 minutes, what is the latest screening that they can watch?

Film	Time		
The Matrix	2:15	3:30	5:15
Good Will Hunting	1:15	2:15	4:15
Snakes on a Number Plane	1:30	3:30	6:15
Hidden Figures	1:15	3:30	5:15
A Beautiful Mind	1:15	4:30	6:30

Screening time = ☐ : ☐ p.m.

51. A die is rolled 60 times and the results are recorded in the following table:

Number	Frequency
1	8
2	10
3	10
4	8
5	12
6	12

a. What is the experimental probability of rolling a 6 with this die?
Express your answer in simplest form.

b. What is the experimental probability of rolling a 3 or higher with this die?
Express your answer in simplest form.

c. What is the experimental probability of rolling a 3 or lower with this die?
Express your answer in simplest form.

52. Quentin busks with 1 friend whilst selling CD copies of his own music. They make a total of $\$24$ from busking and decide to split it evenly. Quentin makes an additional amount by selling 5 CDs at $\$15$ each. If Quentin pays a permit of $\$15$, what is the total amount he earns?