

Integers, powers and roots – Checkpoint Sec 1 Math

1. No.5

Work out the value of $\sqrt{49} + 6^2$

..... [1]

2. No.19

Here is a five-digit number with one digit missing.

3__567

The five-digit number is a multiple of 9

Work out the missing digit.

..... [1]

3. No.25

Here is a number fact.

$$5478 \times 64 = 350\,592$$

Use this to work out

$$54.78 \times 6.4$$

$$3505.92 \div 64$$

.....

.....

[2]

4. No.27

Work out.

$$72 \times 10^5 \times 10^{-6}$$

..... [1]

5. No.1

Here is a list of numbers.

5 7 10 12 16 20

Write down the number that is a factor of 56

..... [1]

6. No.2

Rajiv is thinking of three **consecutive even** numbers less than 20

The product of these three numbers is between 1000 and 2000

Find the three numbers Rajiv is thinking of.

..... , ... and [1]

7. No.11

Find $\sqrt[3]{32}$

..... [1]

8. No.3

All the rows, columns and diagonals add up to 15 in this grid.

3	4	8
10	5	0
2	6	7

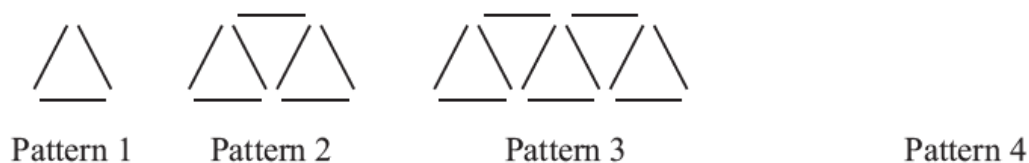
Complete this grid so that all of the rows, columns and diagonals add up to 15

-3	12	
	5	
		13

[2]

9. No.5

The diagram shows the first three patterns of a sequence made from rods.



(a) Draw Pattern 4 in the sequence. [1]

(b) Complete the statement.

When the pattern number increases by 1,

the number of rods increases by [1]

(c) Work out how many rods will be used for Pattern 7

..... [1]

10. No.13

Write a value in the box to make this statement correct.

$$28 \times 10 = 28 \div \boxed{}$$

[1]

11. No.17

Complete this statement using **consecutive** whole numbers.

$$\dots\dots\dots < \sqrt{40} < \dots\dots\dots$$

[1]

12. No.19

The first three terms of the sequence $3n^2 - 7n$ are

$$-4, \quad -2, \quad 6$$

Write down the first three terms of the sequence $3n^2 - 7n + 3$

....., ... [1]

13. No.24

Mia has two ribbons.

One is 60 cm long and the other is 45 cm long.

Mia cuts both ribbons into pieces.

All the pieces have the same length.

Find the **greatest** possible length of each piece of ribbon.

..... cm [1]

14. No.2

◆ is a multiple of 8

* is a factor of 15

$$\text{◆} + \text{*} = 45$$

Find the value of ◆ and the value of *

$$\text{◆} = \text{.....}$$

$$\text{*} = \text{.....}$$

[2]

15. No.18

Minibuses are used to take 142 people to a wedding.

One minibus can hold 17 people.

Work out the number of minibuses used.

$$\text{.....} [1]$$

16. No.3

Here is a number fact.

$$148 \times 76 = 11\,248$$

Use this fact to work out the calculations.

$$14.8 \times 76$$

$$149 \times 76$$

.....

.....

[2]

17. No.4

Work out.

$$\frac{1+12^2}{2 \times 3^2 - 13}$$

..... [1]

18. No.14

■ and * are positive integers.

■ is a factor of 15

* is a multiple of 3

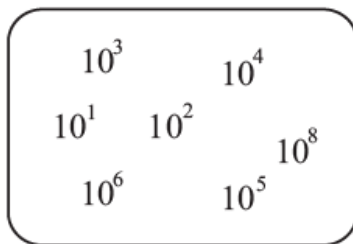
Write down the smallest possible answer to $\blacksquare \times *$.

..... [1]

19. No.10

Complete each statement with the correct power of 10 from the box.

The first one has been done for you.



10×10 is the same as 10^2

10 000 is the same as

One million is the same as

$1000 \div 0.01$ is the same as

[2]

20. No.17

Write 252 as a product of its prime factors.

..... [2]

21. No.19

Calculate.

$$\frac{\sqrt{7} + 4.1^3}{3.1 \times 0.2}$$

..... [1]

22. No.1

Work out the value of $5^2 + \sqrt{121}$

..... [1]

23. No.9

- (a) Complete the table to show equivalent numbers.
The first row is completed for you.

Power of 10	Ordinary number
10^2	100
	10 000
10^5	

[1]

- (b) Work out.

$$1.2 \div 0.01$$

..... [1]

24. No.1

Calculate the square root of 74
Give your answer correct to 1 decimal place.

..... [1]

25. No.7

Work out.

$$(1 + 2.5)^2 - (1 + 2.5^2)$$

..... [1]

26. No.3

Work out.

$$5 \times (4^2 + 2 - 12)$$

..... [1]

27. No.7

Work out.

$$(1 + 2.5)^2 - (1 + 2.5^2)$$

[1]

28. No.12

Put one of the operations

× or ÷

into each box to make the statements true.

$$14 \quad \boxed{} \quad 2.5 = 35$$

$$84 \quad \boxed{} \quad 0.25 = 21$$

$$7 \quad \boxed{} \quad 0.2 = 35$$

$$0.64 \quad \boxed{} \quad 0.02 = 32$$

[2]

29. No.17

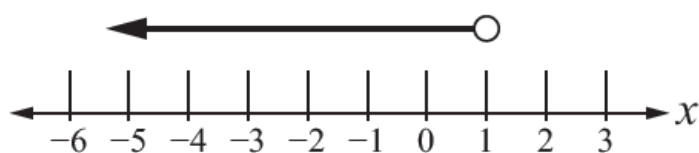
(a) Look at this list of numbers.

-8 -3 -1 0 7 10

Write down all the numbers from this list that satisfy the inequality $-3 < x \leq 7$

..... [1]

(b) Write down the inequality shown on the number line below.



..... [1]

30. No.22

The sum of three **consecutive** whole numbers is 54

Work out the three numbers.

..... , ... and [1]

31. No.23

Write the missing numbers in this multiplication grid.

	×		$\frac{2}{5}$
$\frac{1}{5}$		0.2	
			2

[2]

32. No.24

Estimate $\sqrt[3]{120}$ to the nearest whole number.

[1]

33. No.2

Simplify these power calculations.

Give each answer as a power of 6

(a) $6^8 \div 6^2$

[1]

(b) $3 \times 2 \times 6^3 \times 6^4$

[1]

34. No.14

Aiko has these number cards.

-8	-4	-2	3	5
----	----	----	---	---

Aiko chooses two of the number cards.
She multiplies the numbers together.

Find the maximum possible answer she can get.

..... [1]

35. No.25

The square of a number is 64

Write down the **two** possible values for the number.

..... and [1]

36. No.6

Draw a ring around the **two** numbers that are exactly divisible by 9

39 54 96 123 297 418

[1]

37. No.12

Mia and Lily are trying to find the nearest whole number to $\sqrt{120}$ 

Mia



Lily

Tick (✓) to show who is correct.

Mia ☐Lily ☐

Give a reason for your answer.

.....

..... [1]

38. No.13

Write down all the primes between 60 and 70

..... [1]

39. No.18

Each of these numbers is written as a product of prime factors.

$$539 = 11 \times 7^2$$

$$847 = 7 \times 11^2$$

Use this information to write

(a) $\frac{539}{847}$ as a fraction in its **simplest form**,

..... [1]

(b) $\frac{55}{539}$ as a fraction in its **simplest form**.

..... [1]

40. No.23

Here is a list of numbers.

 $-7 \quad -5 \quad -3 \quad 2 \quad 3 \quad 6$
Find the **largest positive** number that can be made when two numbers from this list are

(a) multiplied together,

..... [1]

(b) subtracted from each other.

..... [1]

41. No.2

Work out

$$\frac{14^2 + 29}{3 \times 2^2 - 7}$$

..... [1]

42. No.25

The number 12.25 has two square roots.

Find them both.

..... and [1]

43. No.3

Write a number in each box to make a true statement.

$$6 - (-2) = \boxed{}$$

$$32 \div (-8) = \boxed{}$$

$$\boxed{} \times (-4) \times 3 = 24$$

[2]

44. No.6

(a) Draw a ring around the best estimate of $\sqrt{83}$

8.7

9.1

9.5

41.5

[1]

(b) Draw a ring around the value of 7^0 $\frac{1}{7}$

0

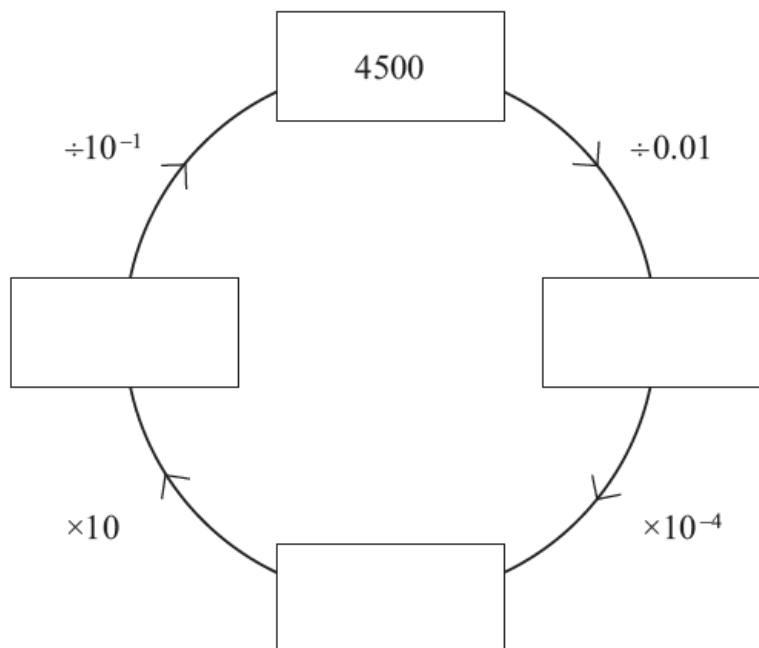
1

7

[1]

45. No.15

Complete the boxes in this diagram.

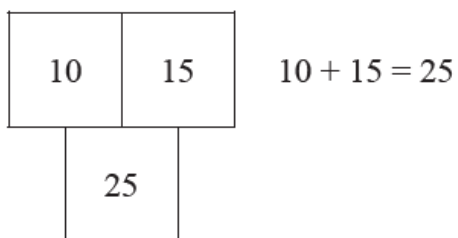


[2]

46. No.1

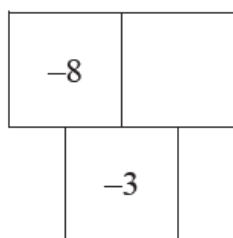
Here is the rule for these number grids.

Add the two top numbers to get the number below.



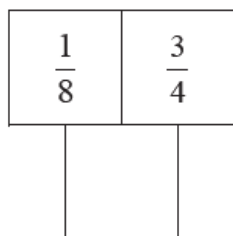
Complete these grids.

(a)



[1]

(b)



[1]

47. No.16

(a) Write down the value of $\sqrt{225}$

..... [1]

(b) Draw a ring around the best estimate to the cube root of 100

3.2

4.6

10

33

[1]

48. No.17

Work out

$$0.036 \times 10^5 = \dots\dots\dots$$

$$470 \times 10^{-2} = \dots\dots\dots$$

$$2 \div 10^{-4} = \dots\dots\dots$$

[2]

49. No.20

Work out the value of m in this calculation.

$$m^{-2} = \frac{1}{9}$$

$$m = \dots\dots\dots [1]$$

50. No.1

Write a **negative** number in each box to make the calculation correct.

$$\boxed{} \times \boxed{} = 18$$

[1]

51. No.8

Saki has 1865 apples.

She packs them into crates.

Each crate can hold 48 apples.

Work out the largest number of crates that she can fill **completely**.

..... crates [2]

52. No.19

* and ● are both positive whole numbers smaller than 20

$$*^2 - \bullet^3 = 10^2$$

Work out the value of * and the value of ●

* = ...

● = ... [1]

53. No.8

Here are the descriptions of two numbers.

The smallest multiple of 5 greater than 1000

The largest multiple of 9 with three digits

Work out the **difference** between these two numbers.

..... [1]

54. No.14

Draw rings around **all** the cube numbers.

6

8

9

36

64

[1]

55. No.18

16 can be written as a power of 2

$$16 = 2^4$$

(a) Write 1 as a power of 2

..... [1]

(b) Write $\frac{1}{8}$ as a power of 2

..... [1]

56. No.13

360 can be written as $2^x \times 3^y \times 5$, where x and y are positive integers.

Work out the value of x and the value of y .

$x =$
 $y =$ [2]

57. No.20

Draw lines to match the equal values.

5^{-1}

0.125

5^{-2}

0.2

2^{-3}

0.25

3^{-2}

4%

$\left(\frac{1}{2}\right)^2$

$\frac{1}{9}$

[2]

58. No.23

Put a ring around the calculations that have an answer **greater** than 42

$$42 \times 0.17$$

$$42 \div 0.18$$

$$42 \times \frac{3}{11}$$

$$42 \div \frac{5}{8}$$

[1]

59. No.9

Show that $\sqrt[3]{46}$ is less than $\sqrt{12.9}$

[1]