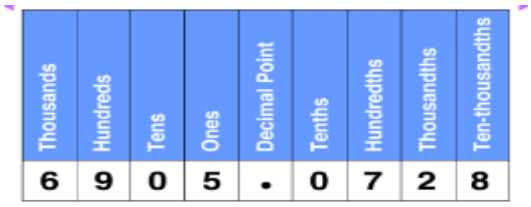
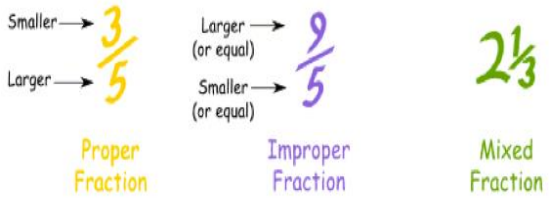
Year 7 – Maths Knowledge Organiser #2
Autumn 2021

Place Value and Proportion

Name: Class:

Topic/Skill	Definition/Tips	Example
Place Value, ordering integers and decimals		
Place value	The value of a **digit** relating to its position.	
Decimal system	Number system based on the number 10. This means only 10 digits are needed.	
Digit	A numeral which forms part of a number (or is the number).	
Billion	A number a thousand times bigger than a million (nine zeros)	Four billion = 4,000,000,000
Integer	Any whole number (including zero).	-2, -1, 0, 1, 2, 3, …
Approximate	Calculate a rough answer with rounded numbers.	2.3 x 18.4 ≈ 2 x 20 = 40
Round	Express to a required level of accuracy.	987 to the nearest thousand is 1000
Equals signs	A way of representing how values relate to each other.	= Equal to ≈ Approximately equal to ≠ Not equal to ≡ Identity (always equal)
Inequality	Similar to an **equation**, but the unknown has a range of values, not just a single value.	> Greater than ≥ Greater than/equal to < Less than ≤ Less than or equal to
Difference	The value between two numbers (often calculated by subtraction).	Difference between 13 and 29 is 16 because 29-13=16
Range	A measure of the spread of the data, $(largest\ value - smallest\ value)$.	Range: **14**, 16, 16, 17, **19** → 19 – 14 = 5
Average	The central or typical value in a data set	Mode, median, mean
Median	The middle value when the data is in order.	Median: 9, 5, 15, 6, 8 → 5, 6, **<u>8</u>**, 9, 15 = 8
Significant figure	Total number of **digits** in a number, not counting zeros at the beginning or the end of a number.	345 000 has 3 significant figures 0.3047 has 4 significant figures

Topic/Skill	Definition/tips	Example
Fraction, decimal and percentage equivalence		
Tenths	The **digit** after the decimal point.	0.1 is one-tenth, 0.7 is seven-tenths
Hundredths	The second **digit** after the decimal point	0.01=one-hundredth; 0.09=nine-hundredths
Fraction	Parts of a whole. Appears on a number line in-between integers.	$\frac{\text{Numerator}}{\text{Denominator}}$
Numerator	The top number in a **fraction**. Shows how many parts we have.	$\frac{3}{8}$ numerator is 3
Denominator	The bottom number in a **fraction**. Shows how many equal parts the item is divided into.	$\frac{3}{8}$ denominator is 8 (eighths)
Proper	The **numerator** is smaller than the **denominator**.	
Improper	The **numerator** is greater than or equal to the **denominator**.	
Mixed Number	A whole number and a **fraction**.	
Terminating decimal	A decimal which has a finite number of **digits** (it has an end point).	$\frac{1}{2} = 0.5$
Recurring decimal	A decimal which has repeating **digits** or a repeating pattern of **digits**.	$0.\dot{3}$ = 0.333333.... $0.\dot{2}\dot{4}$ = 0.242424....
Equivalent	Has the same value, but written in a different form. Either form can be used and the value is unchanged.	

1. What is an integer? (A) a number less than zero (B) a whole number (C) a number between zero and one (D) a number greater than zero

2. Which two integers are negative numbers?
a) –0.47 b) 6 c) –17 d) 0 e) –¼ f) –289

3. True or false? 1 is less than –9.

4. Which integer has a greater value? a) –6 b) 14

5. Which integer has a greater value? a) –13 b) –18

6. True or false? 0 is greater than –8.

7. Select the symbol that makes the following statement true: < >
–501 ___ –502

8. Select the expression that shows that n is greater than or equal to 4.
n > 4 n = 4 n < 4 n ≥ 4 n ≤ 4 n ≠ 4

9. Arrange the cities in descending order according to their average temperature (highest first).

city	temperature (°C)
Ottawa	–10
Beijing	–3
London	4
Moscow	–7
San Francisco	11

10. Which symbol makes the following statement true? = > ≠ ≥ 14 ___ 16

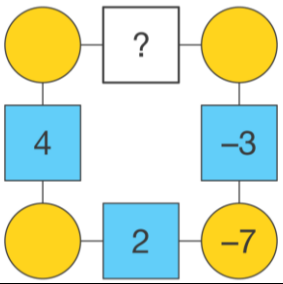
11. Which two integers could satisfy the following expression? –6 < ___ ≤ –3
a) –8 b) 5 c) –6 d) –3 e) 2 f) –5

12. If integer d is less than –5, which three statements are correct?
d ≥ –5 d ≤ –4 d < 5 d ≤ –6

13. Which symbol makes the following statement true? < > = –12,354 ___ –12,345

14. How many integers are greater than –10 and less than 10?

15. The number in each square is exactly halfway between the two numbers in the circles on either side of it.
What number goes in the highlighted square?



16. What is the largest even negative number you can make using the digit cards?

4 3 9 8 1

– ☐☐☐☐☐

17. Use the digit cards to complete the grid.
You can only use each card once and all the rows, columns and diagonals must add up to 15.
What three-digit number goes on the top row?

≠ 3		≠ 2
< 2	= 5	
< 7		

1 2 3 4 5 6 7 8 9

18. Complete the statements using < > or =

30% ◯ 0.3 $\frac{7}{10}$ ◯ 0.14 15% ◯ $\frac{1}{5}$

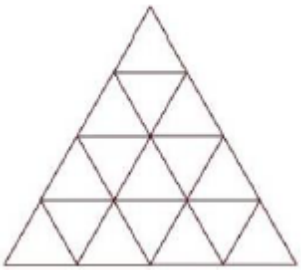
19. Complete the boxes so all the fractions are equivalent $\frac{4}{5} = \frac{\square}{10} = \frac{36}{\square}$

20. Order these fractions from least to greatest $\frac{1}{2}, \frac{3}{4}, \frac{5}{8}, \frac{1}{4}$

21. Complete this table of fraction, decimal and percentage equivalents:

Fraction	Decimal	Percentage
$\frac{1}{8}$		
	0.1	
		25%
$\frac{1}{2}$		
		3%
	0.8	

22. Each of these small triangles are equal in size. Shade in $\frac{5}{8}$ of the diagram.



23. Which of these fractions are improper? a) $\frac{3}{4}$ b) $\frac{7}{10}$ c) $\frac{5}{3}$ d) $\frac{9}{4}$ e) $2\frac{1}{5}$

24. Which of these decimals are recurring? a) 0.125 b) $0.\dot{3}$ c) $0.\dot{5}$ d) 0.2

Answers

1) a whole number **2)** -17 and -289 **3)** false **4)** 14 **5)** -13 **6)** true **7)** > **8)** n ≥ 4
9) San Francisco, London, Beijing, Moscow, Ottawa **10)** ≠ **11)** -3 and -5 **12)** d ≤ –4, d < 5 and d ≤ –6
13) < **14)** 19 **15)** -1 **16)** -13498 **17)** 834 **18)** 30% = 0.3, 7/10 > 0.14, 15% < 0.14 **19)** $\frac{4}{5} = \frac{8}{10} = \frac{36}{45}$
20) $\frac{1}{4}, \frac{1}{2}, \frac{5}{8}, \frac{3}{4}$ **21)**

Fraction	Decimal	Percentage
1/8	0.125	12.5%
1/10	0.1	10%
1/4	0.25	25%
1/2	0.5	50%
3/100	0.03	3%
4/5	0.8	80%

22) Ten triangles should be shaded. **23)** $\frac{5}{3}$ *and* $\frac{9}{4}$. $2\frac{1}{3}$ *is a mixed number*. **24)** $0.\dot{3}$ and $0.\dot{5}$