

Nelson Maths 9 for the CSF II

Homework and Assessment Sheets

Number types

NU 9-1

Name: _____ Class: _____

Due date: _____ Parent's signature: _____

Level 5														/30		

Level 5

Express these composite numbers as products of their prime factors.

1 14 _____

2 32 _____

3 756 _____

4 Rewrite your answer to question 3 in index form. _____

Complete these patterns.

5 -9, -5, -1, _____, _____, _____

6 21, 8, -5, _____, _____, _____

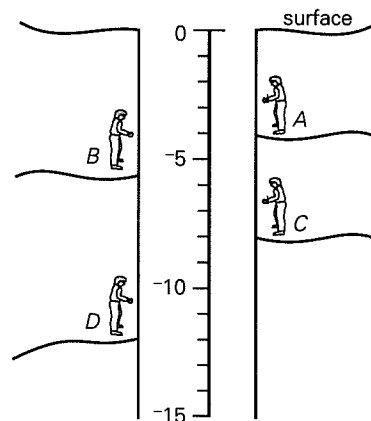
The table shows miners at work in a mine at various depths.

Underground distances are represented in metres as negative numbers.

7 How far underground is person A working? _____

8 How much further below person A is person D? _____

9 Another worker (person E) arrives and is told to work twice as deep as person B. How far underground is this? _____



Mentally calculate the following.

10 $6^2 =$ _____

11 $4^2 + \sqrt{4} =$ _____

12 $\sqrt{25} + \sqrt{1} + 10^2 =$ _____

Use your knowledge of the distributive law to complete the following.

13 $19 \times 6 = 20 \times 6 -$ _____ $\times 6 =$ _____

14 $27 \times 5 =$ _____ $-$ _____ $=$ _____

15 $42 \times 8 =$ _____ $=$ _____

Fill in the missing spaces using mental calculation.

16 $24 \times 6 = 12 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

17 $36 \times 25 = 9 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

18 $84 \div 24 = 7 \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

Estimate whether to place > or < in each space provided.

19 $\frac{1}{6}$ of 40 m $\underline{\hspace{1cm}}$ 7 m

20 $\frac{1}{4}$ of 8.8 mL $\underline{\hspace{1cm}}$ 2 mL

21 8 $\underline{\hspace{1cm}}$ $\frac{1}{9}$ of 65

22 $5\frac{1}{4} + 6\frac{1}{2} \underline{\hspace{1cm}}$ 11

23 $7.1 - 3.3 \underline{\hspace{1cm}}$ 4

Decompose these mixed numbers in order to mentally calculate each answer.

24 $1\frac{1}{2} + 3\frac{1}{4} = \underline{\hspace{3cm}}$

25 $2\frac{3}{4} + 2\frac{1}{2} = \underline{\hspace{3cm}}$

26 $4\frac{3}{4} - 2\frac{1}{2} = \underline{\hspace{3cm}}$

Estimate whether to place < or > in each space.

27 $5.25 + 6.8 \underline{\hspace{1cm}}$ 12

28 $3\frac{1}{3} + 4\frac{1}{3} + 1\frac{1}{2} \underline{\hspace{1cm}}$ 9

29 $9\frac{1}{2} - 8.3 = \underline{\hspace{1cm}}$ 2

30 $6.6 + 7.3 \underline{\hspace{1cm}}$ 14 $\underline{\hspace{1cm}}$ $15\frac{1}{2} - 2\frac{1}{3}$

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In a 'magic' square each row, column and diagonal adds to give the same number. Complete these two magic squares, record their 'magic numbers', add them to make a new square, and comment on your findings.

8		
	5	
		2

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24		8
	20	
		16

=

Write the mathematical meaning of:	Vocabulary
Composite number _____	
Prime number _____	
Index form _____	
Decompose mixed numbers _____	

Nelson Maths 9 for the CSF II Homework and Assessment Sheets

Decimals and fractions

NU 9-2

Name: _____ Class: _____

Due date: _____ Parent's signature: _____

Level 5										/20	Level 6										/10

Part A: Level 5

Answer the following, using a calculator.

1 $100.2 + 90.75 + 80.02 =$ _____

2 $35.09 - 2.1111 =$ _____

3 $3.2 \times -485 =$ _____

4 $(-2)^2 \times 3.1 =$ _____

5 $43 \div -0.2 =$ _____

Only 0.5 of a large cake is to be divided up equally at a party. What decimal fraction of the whole cake would each person receive, given the following number of guests (answer to two decimal places)?

6 7 guests _____

7 100 guests _____

8 75 guests _____

Complete the following table, rounding the calculations to two decimal places.

	Problem	Estimation	Calculation	Two decimal places
9	$496 \div 18$	$(500 \div 20 = 25)$		
10	$2.86 \div 9.5$			
11	$81.1 \div 3.8$			
12	$39.599 \div 0.5$			

Complete these patterns.

13 $3\frac{1}{3}, 6, 8\frac{2}{3},$ _____, _____, _____

14 $20\frac{1}{2}, 17\frac{1}{4}, 14,$ _____, _____, _____

15 $-6\frac{1}{2}, -4, -1\frac{1}{2},$ _____, _____, _____

Felicity has \$53.80. Luke and Elliot have only $\frac{1}{4}$ and $\frac{2}{5}$ as much respectively.

16 Who has more, Luke or Elliot? _____

17 How much does Elliot have? _____

18 Does any person have $< \$13.50$? _____

List the following in ascending order.

19 $0.58, \frac{7}{8}, \frac{2}{3}, 0.\dot{6}5, \frac{3}{5}$ _____

20 $\frac{7}{11}, 0.\dot{8}, \frac{6}{7}, 0.\dot{6}, \frac{5}{6}$ _____

Part B: Level 6

Use mental calculation to fill in the spaces.

1 $90^2 = 81 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

2 $\sqrt{3600} = \underline{\hspace{2cm}} \times \sqrt{100} = \underline{\hspace{2cm}}$

Circle the fractions in each group which can be expressed as recurring decimals.

3 $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{6}, \frac{1}{7}, \frac{1}{8}, \frac{1}{9}, \frac{1}{10}$

4 $\frac{3}{8}, \frac{4}{7}, \frac{3}{5}, \frac{2}{9}, \frac{3}{11}, \frac{7}{8}, \frac{5}{6}, \frac{7}{12}, \frac{3}{20}$

Answer the following rounded off to the number of significant figures indicated. Complete the table.

	Problem	Three significant figures	Two significant figures	One significant figure
5	$\frac{8}{9} + \frac{3}{8} + 0.3$			
6	$\frac{1}{3}(1.091 - 0.83)$			
7	$-4.0197 \div \frac{-1}{3.03}$			

	Problem	Problem rewritten	Answer	Answer (whole number)
	$4.59 \div \frac{1}{10}$	4.59×10	45.9	46
8	$0.9848 \div 0.01$			
9	$8.61 \div 0.1$			
10	$5.\dot{5} \div \frac{11}{20}$			

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If a hen and a half lay an egg and a half in a day and a half, how many eggs will a dozen hens lay in a week?

Write the mathematical meanings of:

Vocabulary

Three decimal places _____

Three significant figures _____

\sqrt{x} _____

Recurring decimal _____

Terminating decimal _____

Nelson Maths 9 for the CSF II Homework and Assessment Sheets

Decimals, fractions and percentages

NU 9-3

Name: _____ Class: _____

Due date: _____ Parent's signature: _____

Level 5										/20	Level 6										/10

Part A: Level 5

There are 27 cats and 45 dogs in a pet show.

- 1 What is the simplest ratio of cats to dogs? _____
- 2 What simple fraction of animals are cats? _____
- 3 What simple fraction of animals are dogs? _____
- 4 What percentage of animals are dogs? _____
- 5 If nine more dogs arrive, what is the percentage of dogs now? _____

Insert the correct sign (<, > or =) to make the following statements correct.

- 6 12% _____ 0.12
- 7 $0.\dot{3}$ _____ 30%
- 8 $\frac{3}{8}$ _____ 38%
- 9 20% _____ $\frac{1}{4}$

Circle the largest number in each case.

- 10 $\frac{2}{3}$ of \$30 or $\frac{3}{4}$ of \$40
- 11 $\frac{2}{5}$ of \$35 or 25% of \$60
- 12 10% of \$9.85 or $\frac{1}{4}$ of \$2.40

Use mental computation to match the statements on the left with a letter from the table.

13 25% of 104 _____	A	1.5 of 20
14 $\frac{2}{3}$ of 75 _____	B	$\frac{1}{2}$ of 52
15 30% of 100 _____	C	$\frac{3}{5}$ of 60
16 0.75 of 48 _____	D	25% of 200

Complete the following table of equivalences from memory.

	Percentage	Decimal	Fraction
17	25		
18		0.1	
19			$\frac{3}{4}$
20	$33.\dot{3}$	$0.\dot{3}$	

Part B: Level 6

Complete the following table from memory.

1	Decimal	$0.\dot{3}$	$0.\dot{6}$	$0.1\dot{6}$			0.375
2	Fraction	$\frac{1}{3}$			$\frac{1}{8}$	$\frac{5}{8}$	

Mentally calculate the following lengths as percentages of 90 cm.

- 3 $33\frac{1}{3}\%$ = _____
- 4 1% = _____
- 5 20% = _____
- 6 $16.\dot{6}\%$ = _____

Write the recurring decimals equivalent to these fractions.

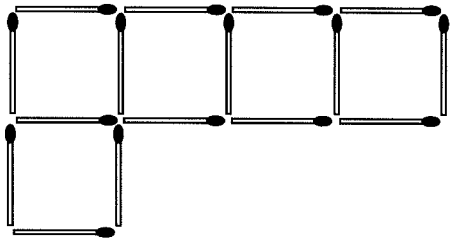
- 7 $\frac{1}{9}, \frac{2}{9}, \frac{3}{9}, \frac{4}{9}, \frac{5}{9}$ _____
- 8 $\frac{1}{6}, \frac{2}{6}, \frac{4}{6}, \frac{5}{6}$ _____

Write the fraction equivalents of these recurring decimals.

- 9 $0.08\dot{3}$ = _____
- 10 $0.\overline{09}$ = _____

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Rearrange the 16 matches to create a 20% reduction in the enclosed area.



Vocabulary

Write the mathematical meanings of:

- Percentage _____
- Ratio _____
- Simplest ratio _____
- Simplest fraction _____

Nelson Maths 9 for the CSF II Homework and Assessment Sheets

Using percentage

NU 9-4

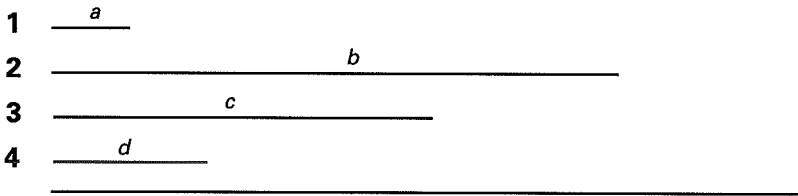
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Level 5					/10	Level 6					/20

Part A: Level 5

Estimate the percentage represented by lines *a*, *b*, *c* and *d* compared with the line below.



Votes for the class captain in 9A, 9B and 9C were 20 out of 25, 18 out of 23, and 21 out of 26 respectively.

- 5 What percentage of students voted for 9C's captain? _____
- 6 What percentage of students did not vote for 9A's captain? _____
- 7 Which class had the most popular captain (the highest % value)? _____

Circle the problems which have values ≥ 300 m.

- 8 25% of 800 m 38% of 800 m 29% of 950 m $33\frac{1}{3}\%$ of 900 m

Place the correct sign (=, > or <) in the space provided.

- 9 $\frac{1}{3}$ _____ 30% 10 7% _____ $\frac{1}{7}$

Part B: Level 6

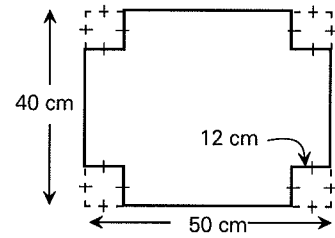
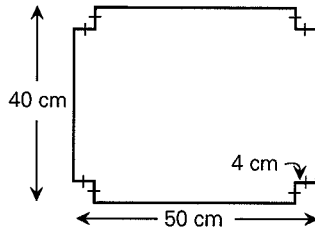
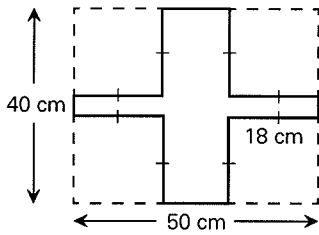
Calculate the increase and percentage increase in price.

	Original price	New price	Increase (in \$)	Nearest whole %
1	\$300	\$450		
2	\$90	\$100		
3	\$69	\$79		

The table represents price reduction at a sale. Fill in the missing data to the nearest whole number.

	Item	Regular price	Sale price	% reduction
4	Jeans	\$69.99		20
5	T-shirts	\$39.99	\$34	
6	Skirts	\$49.99		24

Below are the nets used to make three different sized open cardboard boxes in a factory. In each case find the area and percentage of wasted cardboard after cutting.



- 7 area wasted = _____ 9 area wasted = _____ 11 area wasted = _____
 8 % wastage = _____ 10 % wastage = _____ 12 % wastage = _____

Estimate these fractions as percentages before using a calculator.

	Fraction	Estimated %	Calculated %
13	$\frac{1}{9}$	$\frac{1}{10} = 10\%$	
14	$\frac{19}{47}$		
15	$3\frac{1}{7}$		

Place a >, = or < sign in these statements.

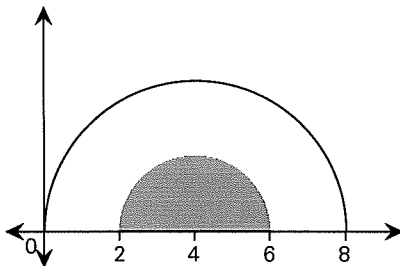
- 16 \$100 increased by 200% _____ \$200 increased by 100%.
 17 \$50 increased by 25% _____ \$25 increased by 50%.
 18 \$12 increased by 500% _____ \$500 increased by 12%.

Bacterial cells divide in two every 8 hours. Use this information to fill in the table below.

	Time	0 h	8 h	16 h	24 h	2 days
19	Number of bacteria	1	2			
20	% increase from beginning	0	100			

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What percentage of the large semicircle has been shaded?



Write the mathematical meanings of:	Vocabulary
Percentage increase _____	
Percentage reduction _____	