

Nelson Maths 9 for the CSF II

Homework and Assessment Sheets

Exponentials

AL 9-1

Name: _____ Class: _____

Due date: _____ Parent's signature: _____

| Level 5 | | | | | | | | | | Level 6 | | | | | | | | | |
|---------|--|--|--|--|--|--|--|--|--|---------|--|--|--|--|--|--|--|--|--|
| /10 | | | | | | | | | | /20 | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |

Part A: Level 5

Write these numbers in index form.

1 $8 \times 8 \times 8 \times 8$ _____

2 $22 \times 22 \times 22 \times 22 \times 22$ _____

Use a calculator to find the basic numeral for:

3 7^5 _____

4 5^4 _____

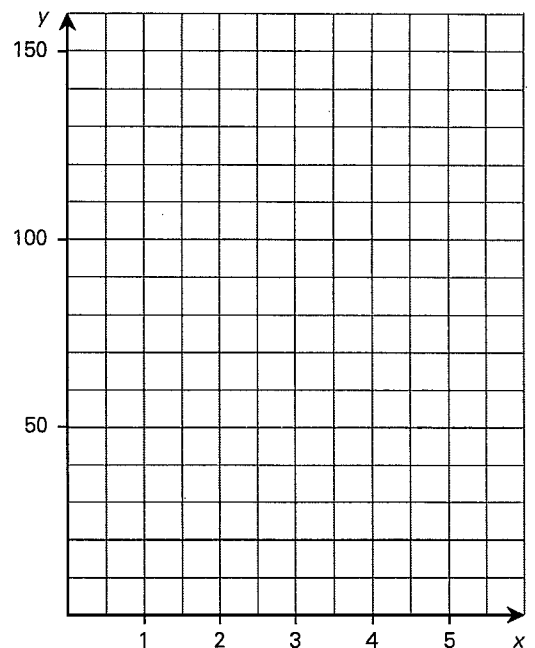
5 Complete this statement: $4^6 \times \underline{\hspace{2cm}} = 4^{14}$

6 and 7 Plot a graph of $y = 5 \times 2^x$ by first completing the table below (2 marks).

| | | | | | | |
|-----|---|---|---|---|---|---|
| x | 0 | 1 | 2 | 3 | 4 | 5 |
| y | | | | | | |

8 and 9 Plot the values as ordered pairs (2 marks).

10 Use your graph to find and complete this ordered pair. (_____, 100)



Part B: Level 6

Use the five index laws to simplify each of the following.

1 $a^2 \times a^5$ _____

2 $3s^2t^3 \times 2s^3t^4$ _____

3 $a^5 \div a^2$ _____

4 $\frac{18x^5y^3}{6x^2y}$ _____

5 $(x^3)^4$ _____

6 $(6p^4)^0$ _____

7 $\left(\frac{3a^2}{b}\right)^3$ _____

8 $\frac{w^2x^3 \times x^3y^4}{xy^2 \times w^2x^5}$ _____

9 $\frac{(2a^2b^3)^2 \times (3ab^2)^3}{2a^4b^3}$ _____

10 $2a^0b^2 \times (3a^2b)^0$ _____

Match each equation with a sketch graph.

11 $y = 1 + 2x$ _____

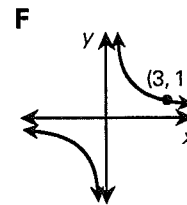
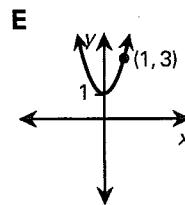
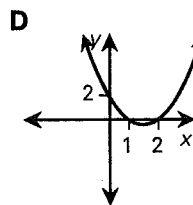
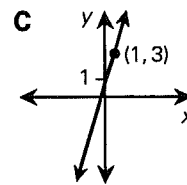
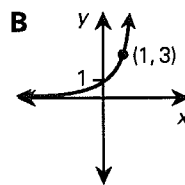
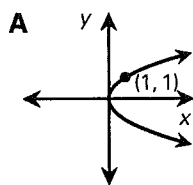
12 $y = 1 + 2x^2$ _____

13 $y = x^2 - 3x + 2$ _____

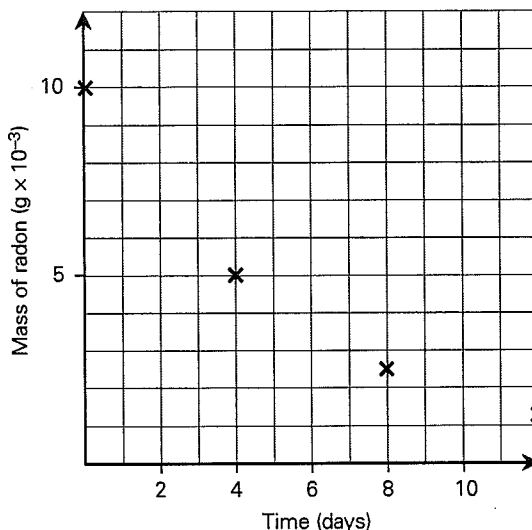
14 $y = \frac{3}{x}$ _____

15 $y = \pm\sqrt{x}$ _____

16 $y = 3^x$ _____



Lord Rutherford first identified the nature of radioactivity by studying the behaviour of a radioactive element called radon in an experiment called the mousetrap experiment. Like all radioactive elements radon decays away over time. A graph is shown of the amount of radon against time for a particular experiment.



17 How much radon was present at the start of the experiment? _____

18 How many days does it take for the amount of radon to halve? (This is known as the half-life.) _____

19 Estimate how much radon would be present after 24 days. _____

20 The general formula for radioactive decay is $R = s e^{-\frac{t}{h}}$ where R is the amount of radioactive material left, s is the starting amount, t is time and h is the half-life.

Using the values that you have already calculated, what is the formula for the radioactive decay of radon? _____

P
u
z
z
l
e
r

On the way to Smithston, I encountered a lot of traffic and drove at an average speed of 60 kilometres per hour. On the way back, there was less traffic, so I averaged 90 kilometres per hour.

What was my average speed for the round trip?

Vocabulary

Write the mathematical meaning of:

Exponent _____

Index _____