WORKSHEET 24   YEAR 09

SUBJECT: MATHEMATICS   NAME OF STUDENT: _____

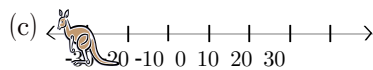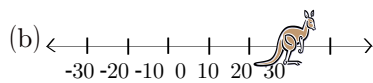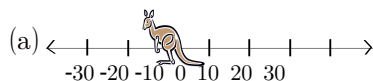| STRAND	*NUMBERS*
SUB-STRAND	Directed Numbers
Content Learning Outcome	Explore and describe number system into different components and representations using examples from practical situations

Summary of Directed Numbers

1. Directed Numbers

Definitions

- **Directed numbers** have both magnitude (size) and direction.
- The direction of a **positive number** is "up" or "forward."
- The direction of a **negative number** is "down" or "backward".

Exercise:

Exercise 1   Use directed numbers to tell the distance of the kangaroo from zero:

(a)

-30 -20 -10 0 10 20 30

(b)

-30 -20 -10 0 10 20 30

(c)

-20 -10 0 10 20 30

2. Integers

Definitions

- The set of **natural numbers** is the set of counting numbers.
- The set of **whole numbers** is the set of natural numbers, plus zero.
- The set of **integers** is the set of positive and negative whole numbers.
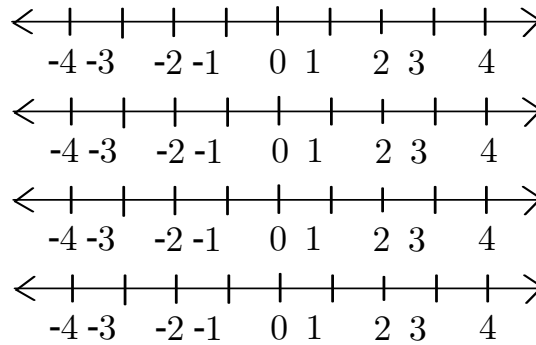
Exercise 2   Plot the following sets on a number line:

(a)   {3}

(b)   {0, 1, 2}

(c)   {0, -1, -2}

(d)   {-4, -2, 0, 2, 4}

$$\xleftarrow{\quad} \underset{-4\ -3\quad -2\ -1\quad\ 0\ \ 1\quad\ 2\ \ 3\quad\ 4}{|\ \ |\ \ |\ \ |\ \ |\ \ |\ \ |\ \ |\ \ |} \xrightarrow{\quad}$$

$$\xleftarrow{\quad} \underset{-4\ -3\quad -2\ -1\quad\ 0\ \ 1\quad\ 2\ \ 3\quad\ 4}{|\ \ |\ \ |\ \ |\ \ |\ \ |\ \ |\ \ |\ \ |} \xrightarrow{\quad}$$

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3.   Order on a Number Line

Definitions

—   On a number line, larger numbers are on the right.

—   > "greater than"

—   < "less than"

—   ≥ "greater or equal to"

—   ≤ "less than or equal to"

Exercise 3   Use < or > to make true statements:

(a)   3 □ 2

(b)   -2 □ 1

(c)   -1 □ -3

(d)   -3 □ -2

(e)   4 □ -5

(f)   0 □ -1