

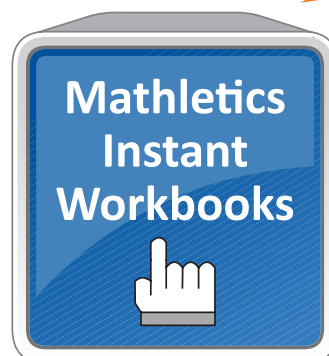
MATHLETICS

Inspiring Better Results

Directed Numbers

Student Book - Series H-2

$+5 \times -3 = \underline{\hspace{2cm}}$



Directed numbers

Student Book - Series H 2

Contents

Topics	Date completed
Topic 1 - Plotting on number lines	__/__/__
Topic 2 - Opposite directions — negative numbers	__/__/__
Topic 3 - Extending the number line	__/__/__
Topic 4 - Addition of directed numbers	__/__/__
Topic 5 - Subtraction of directed numbers	__/__/__
Topic 6 - Multiplication of directed numbers	__/__/__
Topic 7 - Division of directed numbers	__/__/__
Topic 8 - The four operations with directed numbers	__/__/__
Topic 9 - The number plane	__/__/__
Topic 10 - Problem solving with directed numbers	__/__/__

Practice Tests

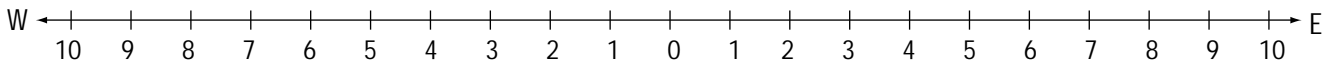
Topic 1 - Topic test A	__/__/__
Topic 2 - Topic test B	__/__/__
Topic 3 - Topic test C	__/__/__

Author of The Topics and Topic Tests: AS Kalra

Directed numbers

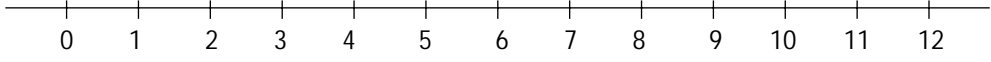
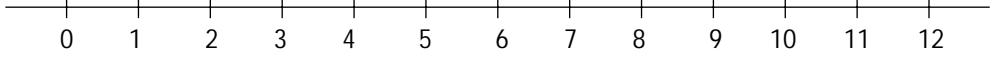
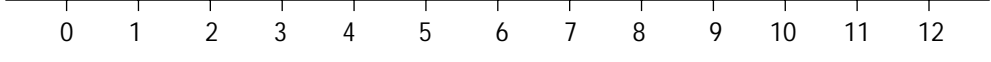
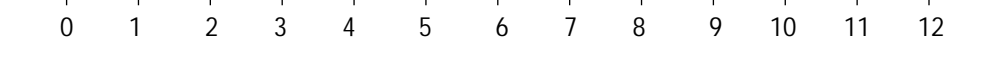
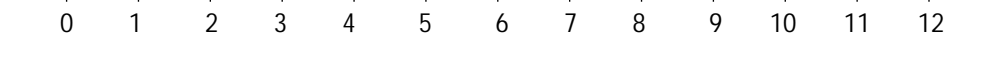
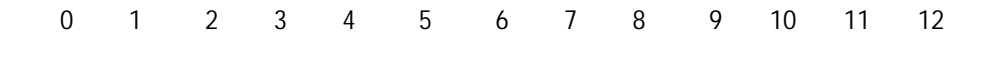
Topic 1: Plotting on number lines

QUESTION 1 Giving *distance* and *direction*, write where you would be from your starting point if you travelled on the east-west line.

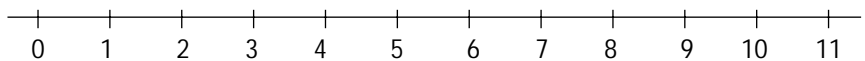
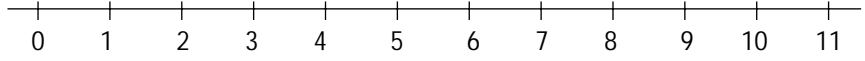






- a 4 km west and then 7 km east _____
- b 6 km west and then 11 km east _____
- c 2 km west and then 8 km east _____
- d 6 km east and then 7 km west _____
- e 2 km east and then 5 km east _____
- f 3 km west and then 6 km west _____

QUESTION 2 Plot the following sets of points on the number line.

- a {1, 3, 4, 6} 
- b {0, 2, 5, 7} 
- c {0, 2, 4, 6} 
- d {1, 3, 5, 7} 
- e {0, 1, 2, 3, 4} 
- f {1, 5, 6, 7, 9} 

QUESTION 3 Graph each set of points on a separate number line.

- a the numbers from 3 to 7 
- b the numbers 1, 2, 5, 6, 8, 9 
- c odd numbers less than 10 
- d even numbers less than 10 
- e prime numbers less than 10 
- f the numbers 2, 3, 4, 8, 9, 10 

Directed numbers

Topic 2: Opposite directions — negative numbers

QUESTION 1 What is the opposite of each of these statements?

- a going up _____ b going north _____
c going east _____ d depositing money _____
e winning \$50 _____ f five floors up _____
g 9° below zero _____ h increase of 40 _____
i 20 steps to the right _____ j 90 m above sea level _____

QUESTION 2 For each of the following statements, write a directed number to show the size and direction of the number.

- a Michelle Russett deposited \$120 _____
b Tim Eastman walked 40 km east _____
c The price came down by \$20 _____
d Maddy took 65 steps forwards _____
e The water level dropped by 3 m _____
f I lost 8 points _____

QUESTION 3 Showing distance and direction, state where you would be from your starting point if you travelled:

- a 9 km east then 5 km west _____
b 12 km west then 5 km east _____
c 7 km north then 6 km south _____
d 25 km east then 15 km west _____
e 8 km east, 12 km west and then 7 km east _____

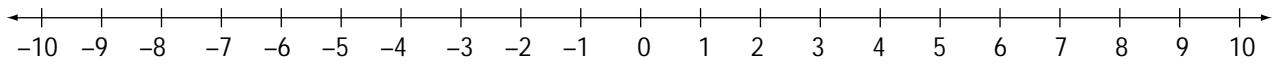
QUESTION 4 Write a number sentence for each of the following.

- a A deposit of \$30 and a deposit of \$25 _____
b A deposit of \$100 and a withdrawal of \$18 _____
c A withdrawal of \$20 and a deposit of \$65 _____
d A deposit of \$15 and a deposit of \$20 _____
e A withdrawal of \$9 and a withdrawal of \$12 _____
f A deposit of \$30 and a deposit of \$70 _____
g A withdrawal of \$18 and a deposit of \$30 _____
h A deposit of \$55 and a deposit of \$17 _____
i A deposit of \$83 and a withdrawal of \$28 _____
j A withdrawal of \$50 and a withdrawal of \$60 _____

Directed numbers

Topic 3: Extending the number line

Use the number line to answer the following questions.



QUESTION 1 Represent each of the following trips on the number line using a directed number (a positive or negative number).

- | | | | |
|---|-----------------|---|-----------------|
| a | 0 to +7 _____ | b | +1 to +8 _____ |
| c | -8 to +3 _____ | d | +3 to +9 _____ |
| e | -2 to +5 _____ | f | -1 to +10 _____ |
| g | +6 to +10 _____ | h | -8 to -1 _____ |
| i | -7 to -3 _____ | j | -9 to +5 _____ |

QUESTION 2 Which is the smaller number?

- | | | | | | | | |
|---|-----------------|---|----------------|---|----------------|---|-----------------|
| a | +10 or +6 _____ | b | +8 or -1 _____ | c | -8 or -2 _____ | d | -2 or +2 _____ |
| e | +6 or +1 _____ | f | -7 or -5 _____ | g | -3 or +7 _____ | h | +10 or +8 _____ |
| i | -6 or -1 _____ | j | -4 or -2 _____ | k | -6 or +7 _____ | l | +8 or +9 _____ |
| m | -8 or -1 _____ | n | -7 or +2 _____ | o | +2 or +8 _____ | | |

QUESTION 3 Use the number line to complete the following.

- | | | | | | |
|---|------------------|---|------------------|---|------------------|
| a | $5 - 8 =$ _____ | b | $4 + 7 =$ _____ | c | $6 + 3 =$ _____ |
| d | $3 + 4 =$ _____ | e | $9 - 2 =$ _____ | f | $8 - 2 =$ _____ |
| g | $-2 + 7 =$ _____ | h | $7 - 3 =$ _____ | i | $5 - 9 =$ _____ |
| j | $4 - 8 =$ _____ | k | $8 - 10 =$ _____ | l | $-3 - 4 =$ _____ |

QUESTION 4 Arrange in descending order.

- | | |
|---|------------------------------|
| a | +2, +4, -2, -7, -9, -1 _____ |
| b | -2, -8, -6, -9, 3, 5 _____ |
| c | 8, 9, 3, 1, 2, -4 _____ |
| d | -3, -5, 2, 6, 3, -1 _____ |
| e | 2, 5, 8 -4, -2, -6 _____ |

QUESTION 5 Write > or < to make the following statements true.

- | | | | | | |
|---|-----------------|---|-----------------|---|-----------------|
| a | 8 _____ -5 | b | 4 _____ -8 | c | 3 _____ -5 |
| d | 6 _____ 9 | e | -5 _____ 5 | f | 4 _____ -9 |
| g | -6 _____ 2 | h | -2 _____ 2 | i | 8 _____ 10 |
| j | 9 _____ -4 | k | -7 _____ $+3$ | l | -2 _____ -7 |
| m | -8 _____ -6 | n | -3 _____ $+2$ | o | -1 _____ 6 |

Directed numbers

Topic 4: Addition of directed numbers

QUESTION 1 Find the sum of the following. Use the number line if necessary.

a $+4 + +9 =$ _____	b $+1 + +2 =$ _____	c $+1 + +7 =$ _____
d $+6 + +2 =$ _____	e $+3 + +6 =$ _____	f $+2 + +9 =$ _____
g $+8 + +3 =$ _____	h $+2 + +4 =$ _____	i $+4 + +7 =$ _____

QUESTION 2 Find each sum.

a $+1 + -1 =$ _____	b $+3 + -8 =$ _____	c $+5 + -9 =$ _____
d $+2 + -3 =$ _____	e $+9 + -5 =$ _____	f $+8 + -6 =$ _____
g $+4 + -2 =$ _____	h $+10 + -4 =$ _____	i $+7 + -7 =$ _____

QUESTION 3 Add the following.

a $-9 + +1 =$ _____	b $-18 + +6 =$ _____	c $-15 + +11 =$ _____
d $-10 + +3 =$ _____	e $-24 + +7 =$ _____	f $-17 + +4 =$ _____
g $-12 + +5 =$ _____	h $-28 + +10 =$ _____	i $-7 + +15 =$ _____

QUESTION 4 Find the answers to these additions.

a $-2 + -3 =$ _____	b $-7 + -1 =$ _____	c $-1 + -7 =$ _____
d $-5 + -9 =$ _____	e $-3 + -2 =$ _____	f $-10 + -5 =$ _____
g $-9 + -4 =$ _____	h $-8 + -10 =$ _____	i $-4 + -8 =$ _____
j $-12 + -17 =$ _____	k $-6 + -14 =$ _____	l $-11 + -6 =$ _____

QUESTION 5 Find the values of the following.

a $+6 + +2 + +5 =$ _____	b $+17 + -3 + -2 =$ _____	c $+10 + +2 + -3 =$ _____
d $-18 + +8 =$ _____	e $-8 + -6 =$ _____	f $-20 + -5 =$ _____
g $+7 + -4 + -1 =$ _____	h $-14 + +3 + +8 =$ _____	i $-9 + -6 =$ _____
j $+10 + -5 + -3 =$ _____	k $+15 + -8 + -3 =$ _____	l $-8 + +4 =$ _____

QUESTION 6 Find the missing number.

a $+4 +$ _____ $= +2$	b _____ $+ -5 = 0$	c $+10 + -3 =$ _____
d $+8 +$ _____ $= +6$	e $+5 + -9 + -2 =$ _____	f $-7 + -8 =$ _____
g $+9 + -6 =$ _____	h $+8 + +4 =$ _____	i $-4 +$ _____ $= -13$
j $-10 +$ _____ $= -21$	k $-3 + -4 + -2 =$ _____	l $+15 + +6 =$ _____
m $+15 + -3 + -4 =$ _____	n $-5 +$ _____ $= -14$	o $-4 +$ _____ $= -18$

Directed numbers

Topic 5: Subtraction of directed numbers

QUESTION 1 Find the answers to the following questions.

- | | | |
|---------------------|----------------------|----------------------|
| a $8 - 5 =$ _____ | b $10 - 7 =$ _____ | c $25 - 18 =$ _____ |
| d $+6 - +4 =$ _____ | e $+14 - +2 =$ _____ | f $+35 - +8 =$ _____ |
| g $+5 - +2 =$ _____ | h $+18 - +3 =$ _____ | i $+12 - +1 =$ _____ |
| j $+9 - +3 =$ _____ | k $+31 - +6 =$ _____ | l $+18 - +8 =$ _____ |

QUESTION 2 Complete these subtractions. Use the number line if necessary.

- | | | |
|----------------------|-----------------------|-----------------------|
| a $+6 - -2 =$ _____ | b $+18 - -6 =$ _____ | c $+27 - -10 =$ _____ |
| d $+10 - -3 =$ _____ | e $+25 - -12 =$ _____ | f $+14 - -7 =$ _____ |
| g $+11 - -4 =$ _____ | h $+9 - -11 =$ _____ | i $+19 - -9 =$ _____ |
| j $+15 - -5 =$ _____ | k $+8 - -8 =$ _____ | l $+32 - -13 =$ _____ |

QUESTION 3 Find each difference.

- | | | |
|-----------------------|-----------------------|-----------------------|
| a $-20 - +2 =$ _____ | b $-8 - +6 =$ _____ | c $-7 - +12 =$ _____ |
| d $-10 - +8 =$ _____ | e $-16 - +9 =$ _____ | f $-17 - +4 =$ _____ |
| g $-15 - +10 =$ _____ | h $-12 - +3 =$ _____ | i $-27 - +7 =$ _____ |
| j $-5 - +5 =$ _____ | k $-24 - +13 =$ _____ | l $-38 - +11 =$ _____ |

QUESTION 4 Find the answers to the following subtractions.

- | | | |
|----------------------|----------------------|----------------------|
| a $-3 - -1 =$ _____ | b $-2 - -5 =$ _____ | c $-13 - -8 =$ _____ |
| d $-5 - -6 =$ _____ | e $-8 - -2 =$ _____ | f $-6 - -3 =$ _____ |
| g $-7 - -10 =$ _____ | h $-12 - -7 =$ _____ | i $-15 - -9 =$ _____ |
| j $-9 - -12 =$ _____ | k $-11 - -4 =$ _____ | l $-4 - -11 =$ _____ |

QUESTION 5 Find the values of the following.

- | | | |
|-----------------------|-----------------------|-----------------------|
| a $-1 - -3 =$ _____ | b $-34 - +23 =$ _____ | c $-88 - +35 =$ _____ |
| d $-12 - -7 =$ _____ | e $+45 - -19 =$ _____ | f $-91 - -31 =$ _____ |
| g $-23 - +11 =$ _____ | h $-56 - -27 =$ _____ | i $+14 - -39 =$ _____ |
| j $-36 - -15 =$ _____ | k $+67 - +43 =$ _____ | l $-19 - -47 =$ _____ |

QUESTION 6 Simplify the following.

- | | | |
|------------------------|------------------------|-----------------------|
| a $9 - 4 =$ _____ | b $-23 - 10 =$ _____ | c $17 - 9 =$ _____ |
| d $-7 - (-6) =$ _____ | e $11 - (-14) =$ _____ | f $5 - (-12) =$ _____ |
| g $-11 - 8 =$ _____ | h $36 - (-6) =$ _____ | i $28 - 11 =$ _____ |
| j $-15 - (-9) =$ _____ | k $3 - 8 =$ _____ | l $2 - 17 =$ _____ |

Directed numbers

Topic 6: Multiplication of directed numbers

QUESTION 1 Multiply the following.

- a $+5 \times +1 =$ _____ b $+15 \times +8 =$ _____ c $+14 \times +9 =$ _____
d $+12 \times +6 =$ _____ e $+7 \times +2 =$ _____ f $+18 \times +3 =$ _____
g $+11 \times +11 =$ _____ h $+13 \times +5 =$ _____ i $+9 \times +10 =$ _____
j $+16 \times +21 =$ _____ k $+17 \times +7 =$ _____ l $+21 \times +4 =$ _____

QUESTION 2 Work out the following.

- a $+4 \times -2 =$ _____ b $+1 \times -3 =$ _____ c $+3 \times -15 =$ _____
d $+2 \times -9 =$ _____ e $+5 \times -12 =$ _____ f $+18 \times -5 =$ _____
g $+7 \times -6 =$ _____ h $+8 \times -4 =$ _____ i $+6 \times -8 =$ _____
j $+15 \times -7 =$ _____ k $+10 \times -11 =$ _____ l $+21 \times -5 =$ _____

QUESTION 3 Find the answers to the following.

- a $-3 \times +10 =$ _____ b $-6 \times +8 =$ _____ c $-7 \times +9 =$ _____
d $-10 \times +15 =$ _____ e $-2 \times +11 =$ _____ f $-1 \times +12 =$ _____
g $-5 \times +13 =$ _____ h $-11 \times +14 =$ _____ i $-8 \times +15 =$ _____
j $-9 \times +6 =$ _____ k $-4 \times +5 =$ _____ l $-12 \times +7 =$ _____

QUESTION 4 Simplify.

- a $-7 \times -10 =$ _____ b $-1 \times -4 =$ _____ c $-8 \times -14 =$ _____
d $-2 \times -11 =$ _____ e $-9 \times -12 =$ _____ f $-3 \times -13 =$ _____
g $-10 \times -2 =$ _____ h $-4 \times -3 =$ _____ i $-11 \times -5 =$ _____
j $-5 \times -6 =$ _____ k $-12 \times -1 =$ _____ l $-6 \times -7 =$ _____

QUESTION 5 Find each product.

- a $+4 \times -3 =$ _____ b $-10 \times -10 =$ _____ c $-9 \times +6 =$ _____
d $-3 \times +5 =$ _____ e $+12 \times +12 =$ _____ f $-15 \times +5 =$ _____
g $+8 \times -6 =$ _____ h $-11 \times -14 =$ _____ i $+18 \times -4 =$ _____
j $-6 \times +8 =$ _____ k $+8 \times -9 =$ _____ l $-25 \times -7 =$ _____

QUESTION 6 Complete the following tables.

a

\times	+8	-6	+10
+6			
-8			
+3			

b

\times	-8	+9	-5
+4			
-2			
+5			

c

\times	+4	-6	+8
-7			
+12			
-15			

Directed numbers

Topic 7: Division of directed numbers

QUESTION 1 Divide the following.

a	$+10 \div +2 =$ _____	b	$+25 \div +5 =$ _____	c	$+14 \div +7 =$ _____
d	$+12 \div +4 =$ _____	e	$+27 \div +3 =$ _____	f	$+8 \div +4 =$ _____
g	$+36 \div +6 =$ _____	h	$+38 \div +2 =$ _____	i	$+9 \div +3 =$ _____
j	$+18 \div +9 =$ _____	k	$+64 \div +8 =$ _____	l	$+26 \div +2 =$ _____

QUESTION 2 Work out the following divisions.

a	$+6 \div -2 =$ _____	b	$+18 \div -9 =$ _____	c	$+27 \div -9 =$ _____
d	$+9 \div -3 =$ _____	e	$+39 \div -3 =$ _____	f	$+21 \div -7 =$ _____
g	$+12 \div -4 =$ _____	h	$+24 \div -8 =$ _____	i	$+33 \div -11 =$ _____
j	$+15 \div -5 =$ _____	k	$+30 \div -15 =$ _____	l	$+36 \div -4 =$ _____

QUESTION 3 Simplify the following.

a	$-15 \div +3 =$ _____	b	$-36 \div +9 =$ _____	c	$-42 \div +6 =$ _____
d	$-21 \div +7 =$ _____	e	$-48 \div +8 =$ _____	f	$-35 \div +5 =$ _____
g	$-24 \div +8 =$ _____	h	$-64 \div +4 =$ _____	i	$-26 \div +2 =$ _____
j	$-30 \div +10 =$ _____	k	$-56 \div +7 =$ _____	l	$-18 \div +9 =$ _____

QUESTION 4 If $a = 5$, $b = 3$, $c = 6$ and $d = 10$, find the value of each of the following.

a	$a \div b =$ _____	b	$c^2 \div d =$ _____	c	$ac \div d =$ _____
d	$c \div d =$ _____	e	$a^2 + b^2 =$ _____	f	$c^2 \div b^2 =$ _____
g	$a^2 \div b =$ _____	h	$d \div ab =$ _____	i	$d \div c =$ _____
j	$d^2 \div a =$ _____	k	$bd \div ac =$ _____	l	$cd \div ab =$ _____

QUESTION 5 Fill in the missing number.

a	$-60 \div \underline{\hspace{2cm}} = -6$	b	$-144 \div +12 = \underline{\hspace{2cm}}$	c	$-12 \div +4 = \underline{\hspace{2cm}}$
d	$\underline{\hspace{2cm}} \div -4 = +9$	e	$+48 \div \underline{\hspace{2cm}} = -6$	f	$\underline{\hspace{2cm}} \div -7 = +7$
g	$-64 \div -16 = \underline{\hspace{2cm}}$	h	$-64 \div -4 = \underline{\hspace{2cm}}$	i	$-33 \div \underline{\hspace{2cm}} = -3$
j	$\underline{\hspace{2cm}} \div -7 = -6$	k	$-63 \div \underline{\hspace{2cm}} = 7$	l	$+28 \div \underline{\hspace{2cm}} = -7$

QUESTION 6 Simplify the following.

a	$+38 \div -2 =$ _____	b	$+48 \div +8 =$ _____	c	$+81 \div -9 =$ _____
d	$-46 \div +2 =$ _____	e	$-25 \div -5 =$ _____	f	$-74 \div +2 =$ _____
g	$-68 \div -4 =$ _____	h	$+35 \div +7 =$ _____	i	$+68 \div -2 =$ _____
j	$+72 \div -9 =$ _____	k	$-66 \div -11 =$ _____	l	$+56 \div +7 =$ _____

Directed numbers

Topic 8: The four operations with directed numbers

QUESTION 1 Find the answers to the following.

- a $7 + -8 =$ _____ b $36 + +3 =$ _____ c $18 - -4 =$ _____
d $-9 - +5 =$ _____ e $45 + -1 =$ _____ f $-24 - -6 =$ _____
g $10 + -7 =$ _____ h $-54 - +2 =$ _____ i $36 + +7 =$ _____
j $-21 - +6 =$ _____ k $-9 - -3 =$ _____ l $-48 + +8 =$ _____

QUESTION 2 Find the value of the following.

- a $-28 \div -4 =$ _____ b $+36 \div -4 =$ _____ c $-72 \div -4 =$ _____
d $-15 + -3 =$ _____ e $+25 - +6 =$ _____ f $-42 - -12 =$ _____
g $+19 - -8 =$ _____ h $+28 + -10 =$ _____ i $-45 + +14 =$ _____
j $-29 + +7 =$ _____ k $-32 - +9 =$ _____ l $-64 - -15 =$ _____

QUESTION 3 Work out the following.

- a $+63 \div -9 =$ _____ b $-32 \times +2 =$ _____ c $-42 \div -7 =$ _____
d $-56 \div -7 =$ _____ e $-48 \div -8 =$ _____ f $+20 \times +5 =$ _____
g $+28 \div +4 =$ _____ h $+81 \div -9 =$ _____ i $-10 \times -6 =$ _____
j $-24 \times -3 =$ _____ k $+96 \div -6 =$ _____ l $-8 \times +9 =$ _____

QUESTION 4 Simplify the following.

- a $(+5 \times +4) \times -2 =$ _____ b $+10 - +4 \times -5 =$ _____ c $-6 + -5 + -8 =$ _____
d $(-3 \times -2) \times -5 =$ _____ e $-64 \div -8 \times +3 =$ _____ f $16 \div (-6 + 2) =$ _____
g $24 \div (-3 \times -2) =$ _____ h $(-6 - 6) \times -5 =$ _____ i $30 \times (15 \div 5) =$ _____
j $(+8 \times -3) \div -4 =$ _____ k $-300 \div -50 \times 2 =$ _____ l $(-8 - 4) \div 6 =$ _____

QUESTION 5 Fill in the missing number.

- a $+72 \div -9 =$ _____ b _____ $\div 2 = -12$ c $+24 -$ _____ $= +18$
d $+9 \times -6 =$ _____ e _____ $\div +9 = -6$ f $-10 -$ _____ $= -7$
g $+8 + -7 =$ _____ h $+15 + -6 =$ _____ i $+8 \times$ _____ $= -80$
j $-6 - -3 =$ _____ k $-18 - -5 =$ _____ l $-9 +$ _____ $= -15$

QUESTION 6 Complete the tables.

a

\times	+6	-8	+10	-12	-3	+5
-3						
5						
-9						

b

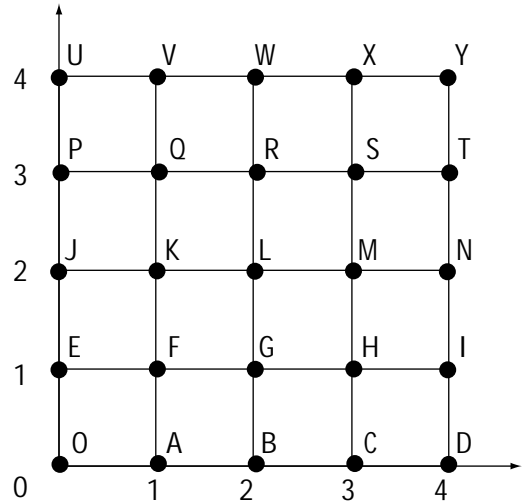
\times	-5	-3	+2	+6	-8	+9
+4						
-8						
+7						

Directed numbers

Topic 9: The number plane

QUESTION 1 Write the letter used to name the following points.

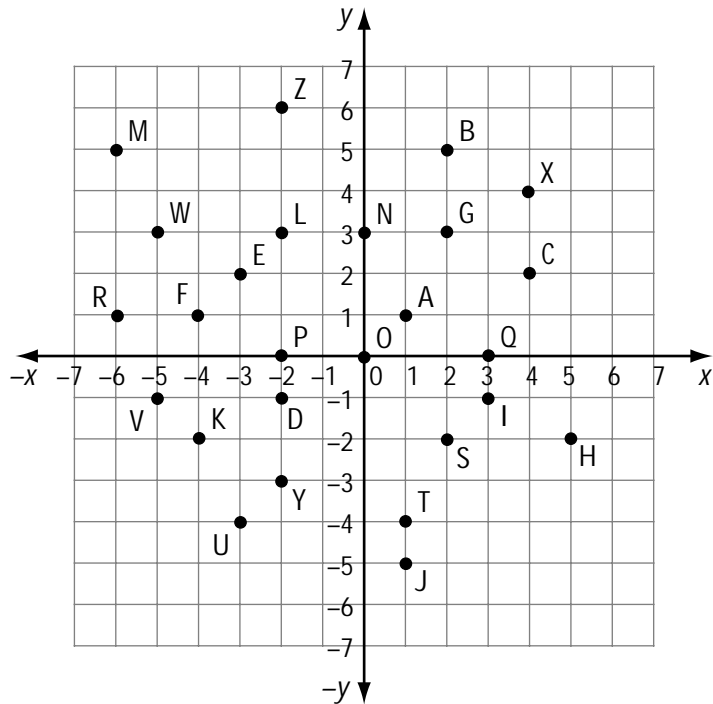
- | | | | |
|---|--------------|---|--------------|
| a | (0, 0) _____ | b | (1, 1) _____ |
| c | (2, 2) _____ | d | (3, 3) _____ |
| e | (4, 4) _____ | f | (0, 1) _____ |
| g | (0, 2) _____ | h | (0, 3) _____ |
| i | (0, 4) _____ | j | (1, 0) _____ |
| k | (2, 0) _____ | l | (3, 0) _____ |
| m | (4, 0) _____ | n | (2, 1) _____ |
| o | (2, 3) _____ | p | (2, 4) _____ |
| q | (1, 2) _____ | r | (1, 3) _____ |
| s | (1, 4) _____ | t | (3, 1) _____ |
| u | (3, 2) _____ | v | (3, 4) _____ |



- | | | | |
|---|--------------|---|--------------|
| w | (4, 1) _____ | x | (4, 2) _____ |
|---|--------------|---|--------------|

QUESTION 2 Write down the coordinates of the following points shown in the number plane.

- | | |
|---|---------|
| a | A _____ |
| b | B _____ |
| c | C _____ |
| d | D _____ |
| e | E _____ |
| f | F _____ |
| g | G _____ |
| h | H _____ |
| i | I _____ |
| j | J _____ |
| k | K _____ |
| l | L _____ |
| m | M _____ |
| n | N _____ |
| o | O _____ |
| p | P _____ |
| q | Q _____ |
| u | U _____ |
| y | Y _____ |



- | | | | | | |
|---|---------|---|---------|---|---------|
| r | R _____ | s | S _____ | t | T _____ |
| v | V _____ | w | W _____ | x | X _____ |
| z | Z _____ | | | | |

Directed numbers

Topic 10: Problem solving with directed numbers

- 1** Where would I be after a trip of 5 km south, followed by a trip of 9 km north?

- 2** What would be the net result of a deposit of \$700 in my account followed by a withdrawal of \$900?

- 3** Two numbers have a product of 56 and their sum of -15 . What are the numbers?

- 4** If the sum of two numbers is -2 and their product is -24 , find the numbers?

- 5** I am a negative number divisible by 7 and greater than -9 . What number am I?

- 6** Find the sum of a profit of \$9000 and a loss of \$21 000.

- 7** The temperature fell 5° during the day and fell another 5° during the night. What was the total change in temperature?

- 8** What is the combined effect of a gain of 8 kg and a loss of 7 kg?

- 9** Find the two integers whose sum is -11 and product is 30.

- 10** Start with the integer 5, add 7 and multiply the result by -3 . What is the answer?

- 11** If 6 more than -4 is added to the product of 5 and 9, what is the result?

- 12** Divide -72 by -9 and multiply the result by -5 . What is the answer?

- 13** Which of the integers $-9, -5, -2, -1, 3, 7$ is closest to zero?

- 14** From the integers $-7, -5, -3, 4, 9$, find the three integers whose sum is -1 .

- 15** Multiply 8 by -12 and add 6 to the result. What is the answer?

Directed numbers

Topic Test

PART A

Instructions This part consists of 12 multiple-choice questions
Each question is worth 1 mark
Fill in only ONE CIRCLE for each question
Calculators are NOT allowed

Time allowed: 15 minutes

Total marks = 12

				Marks		
1	$-16 + +4$ equals	<input type="radio"/> (A) -12	<input type="radio"/> (B) -20	<input type="radio"/> (C) 12	<input type="radio"/> (D) 20	<input type="text" value="1"/>
2	$-9 + -2 + -1$ equals	<input type="radio"/> (A) -12	<input type="radio"/> (B) 12	<input type="radio"/> (C) -11	<input type="radio"/> (D) -10	<input type="text" value="1"/>
3	$+8 - -5$ equals	<input type="radio"/> (A) 3	<input type="radio"/> (B) 13	<input type="radio"/> (C) -3	<input type="radio"/> (D) -13	<input type="text" value="1"/>
4	$(-3)^2$ equals	<input type="radio"/> (A) -9	<input type="radio"/> (B) 9	<input type="radio"/> (C) -6	<input type="radio"/> (D) 6	<input type="text" value="1"/>
5	$-12 - - 12$ equals	<input type="radio"/> (A) 24	<input type="radio"/> (B) -24	<input type="radio"/> (C) 0	<input type="radio"/> (D) 144	<input type="text" value="1"/>
6	$(-7 \times 5) + 9$ equals	<input type="radio"/> (A) -26	<input type="radio"/> (B) 26	<input type="radio"/> (C) -18	<input type="radio"/> (D) 18	<input type="text" value="1"/>
7	$-7 - (8 - -2)$ equals	<input type="radio"/> (A) 3	<input type="radio"/> (B) -3	<input type="radio"/> (C) -17	<input type="radio"/> (D) 17	<input type="text" value="1"/>
8	$-10 + -4 \times -5$ equals	<input type="radio"/> (A) -10	<input type="radio"/> (B) 10	<input type="radio"/> (C) -30	<input type="radio"/> (D) 30	<input type="text" value="1"/>
9	If $a = 5$ and $b = 4$ then $(a - b)^2$ equals	<input type="radio"/> (A) 81	<input type="radio"/> (B) 25	<input type="radio"/> (C) 16	<input type="radio"/> (D) 1	<input type="text" value="1"/>
10	If $x = 3$ and $y = -8$ then $xy + 7$ equals	<input type="radio"/> (A) 17	<input type="radio"/> (B) -17	<input type="radio"/> (C) 31	<input type="radio"/> (D) -31	<input type="text" value="1"/>

Directed numbers

Topic Test

PART A continued

				Marks				
11	$-9 \times -6 \div -2$ equals							
(A)	-27	(B)	27	(C)	-54	(D)	54	1
12	$+48 + +10 - -2$ equals							
(A)	58	(B)	60	(C)	56	(D)	62	1
13	$-64 \div +16 - -3$ equals							
(A)	-7	(B)	+1	(C)	-1	(D)	7	1
14	$(-8 \times -4) \div -16$ equals							
(A)	2	(B)	-2	(C)	16	(D)	-16	1
15	$-15 - (9 - -1)$ equals							
(A)	-25	(B)	25	(C)	-6	(D)	6	1
Total marks achieved for PART A								15

Directed numbers

Topic Test

PART B

Instructions This part consists of 15 questions
Each question is worth 1 mark
Write answers in the answers-only column

Time allowed: 20 minutes

Total marks = 15

Questions	Answers only	Marks
1 $18 \div -6 =$		1
2 $5 - -12 =$		1
3 $(-7)^2 =$		1
4 $-8 - 10 =$		1
5 $15 - 8 \times 4 =$		1
6 $-36 \div -9 =$		1
7 $-8 \times (5 - 9) =$		1
8 $5 - 8\frac{1}{2} =$		1
9 $(-6 - -15) \times (8 - 12) =$		1
10 $-36 \div 9 \div -4 =$		1
11 $(-3)^2 \times (5 - 12) =$		1
12 $\frac{-6 - -18}{5 - 7} =$		1
13 $8 \times -2 - (6 - 11) =$		1
14 $1 + -15 =$		1
15 $5 - -12 + 8 \times -3 =$		1

Total marks achieved for PART B

15

Directed numbers

Topic Test

PART C

Instructions This part consists of 4 questions
Each question is worth 5 marks
Show all necessary

Time allowed: 20 minutes

Total marks = 20

Questions	Marks
<p>1 Evaluate the following.</p> <p>a $-8 \times -5 \times -2 =$ _____ b $+8 + -7 + -3 \times -4 =$ _____</p> <p>c $-36 \div -9 + -8 =$ _____ d $(-9)^2 + (-12 \div 6) =$ _____</p> <p>e $8 \times -6 - (7 - 8) =$ _____</p>	<div style="border: 1px solid black; width: 20px; height: 20px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">5</div>
<p>2 Complete the number pattern.</p> <p>a $-3, -2, -1, 0,$ _____ , _____ , _____</p> <p>b $-5, -3, -1, 1,$ _____ , _____ , _____</p> <p>c $-2, -4, -6, -8,$ _____ , _____ , _____</p> <p>d $3, -6, 12, -24,$ _____ , _____ , _____</p> <p>e $32, -16, 8,$ _____ , _____ , _____</p>	<div style="border: 1px solid black; width: 20px; height: 20px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">5</div>
<p>3 Simplify the following.</p> <p>a $\frac{-8 + -10}{-6} =$ _____ b $\frac{-27 - 9}{-4} =$ _____</p> <p>c $\frac{8 + (3 \times -5)}{7} =$ _____ d $\frac{-12 \times -6}{-15 + 7} =$ _____</p> <p>e $\frac{5 - 53}{25 - 9} =$ _____</p>	<div style="border: 1px solid black; width: 20px; height: 20px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">5</div>
<p>4 Find the value of the following.</p> <p>a $[26 - (-4)] \times -3 =$ _____</p> <p>b $[-8 - (-19)] \div 11 =$ _____</p> <p>c $96 - (-5 \times 12) =$ _____</p> <p>d $[(9 \times -6) - 3] \div -3 =$ _____</p> <p>e $-9 + -12 \times -6 \div -3 =$ _____</p>	<div style="border: 1px solid black; width: 20px; height: 20px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">5</div>

Total marks achieved for PART C

20