Negative Integers - Year 6

Table of Contents	

NEGATIVE INTEGERS

Numbers below zero help us describe direction and change.

Temperature

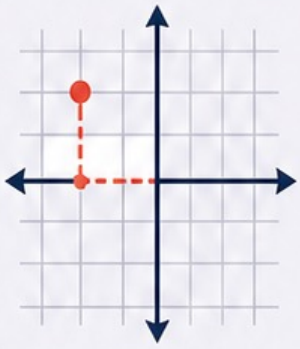
-6°C is six degrees below zero.

Elevation

-18 m is eighteen metres below sea level.

Money

-$25 represents a debt of twenty-five dollars.



Coordinates

(-4, 3) means left 4, up 3.

0 Zero is neither positive nor negative.

Opposites are equal distances from zero.

Values increase as you move right.

INTEGER SORT LAB

CONTEXT CARDS A

A1

-18°C

overnight temperature

A2

-9 m

below sea level

A3

-4 points

penalty

A4

-$1

account bal e

A5

0 m

sea level

A6

0°C

freezing point

A7

+2 floors

above ground

A8

+5 points

bonus score

A9

+7°C

morning temperature

A10

+11 m

above sea level

A11

-$25

debt

A12

+$30

credit

INTEGER SORT LAB

CONTEXT CARDS B

B1

−3

lift level

B2

−12 m

diver depth

B3

−6 points

HOME AWAY 12 : 07

team loss

B4

$0

break-even balance

B5

+$18

deposit

B6

+24 m

summit height

B7

−15 °C

freezer temperature

B8

+8 m

climb

B9

−2

parking level

B10

+10 points

score increase

B11

0 °C

no change from zero

B12

−$40

amount owed

INTEGER SORT LAB

SORT & EXPLAIN

Place each card in the correct group. Then record eight examples and explain your choice.

NEGATIVE	ZERO	POSITIVE
less than zero	neither positive nor negative	greater than zero

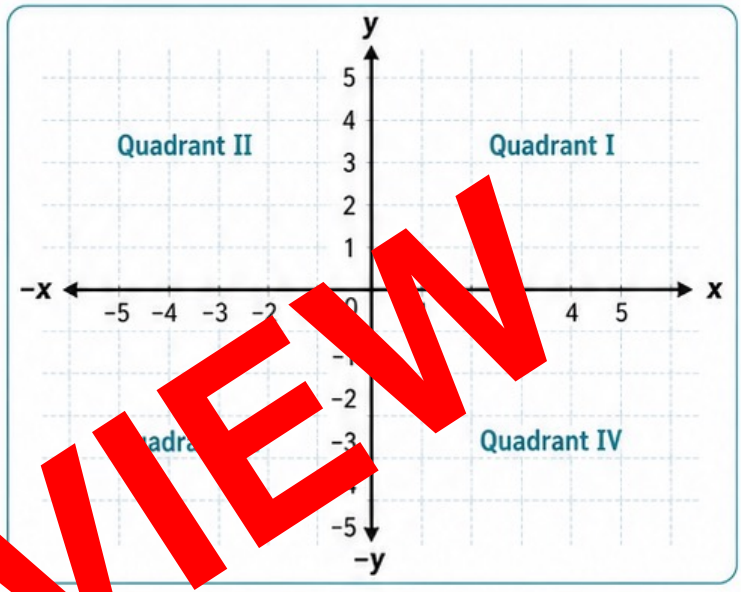
CARD	INTEGER	WHY?

COORDINATE FLEET CHALLENGE

HOW TO PLAY

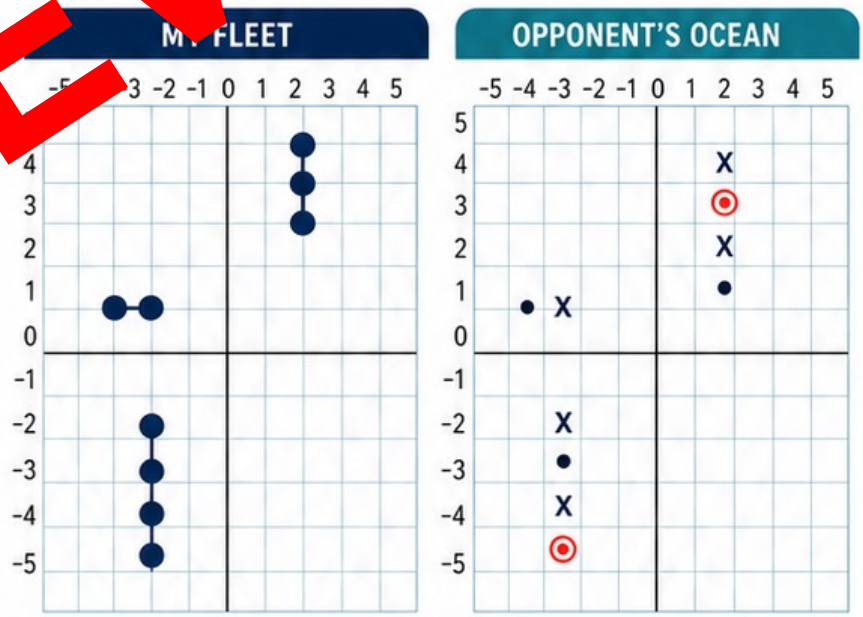
Objective

Be the first captain to locate and sink all three of your opponent's ships.



Set up

- Each player needs a *My Fleet* board, an Opponent's Ocean board and a pencil.
- Secretly place each ship horizontally or vertically on grid points. Ships may not overlap.



Take a rn

- Call one ordered pair, saying *x* first and *y* second.
- Your opponent answers **HIT** or **MISS**. Mark the result on Opponent's Ocean.
- If every point of a ship is hit, announce **SUNK**.

X = HIT ● = MISS ◎ = SUNK

Win

The first player to sink all three opposing ships wins.

Remember: move across the *x*-axis first, then up or down the *y*-axis.

COORDINATE FLEET CHALLENGE

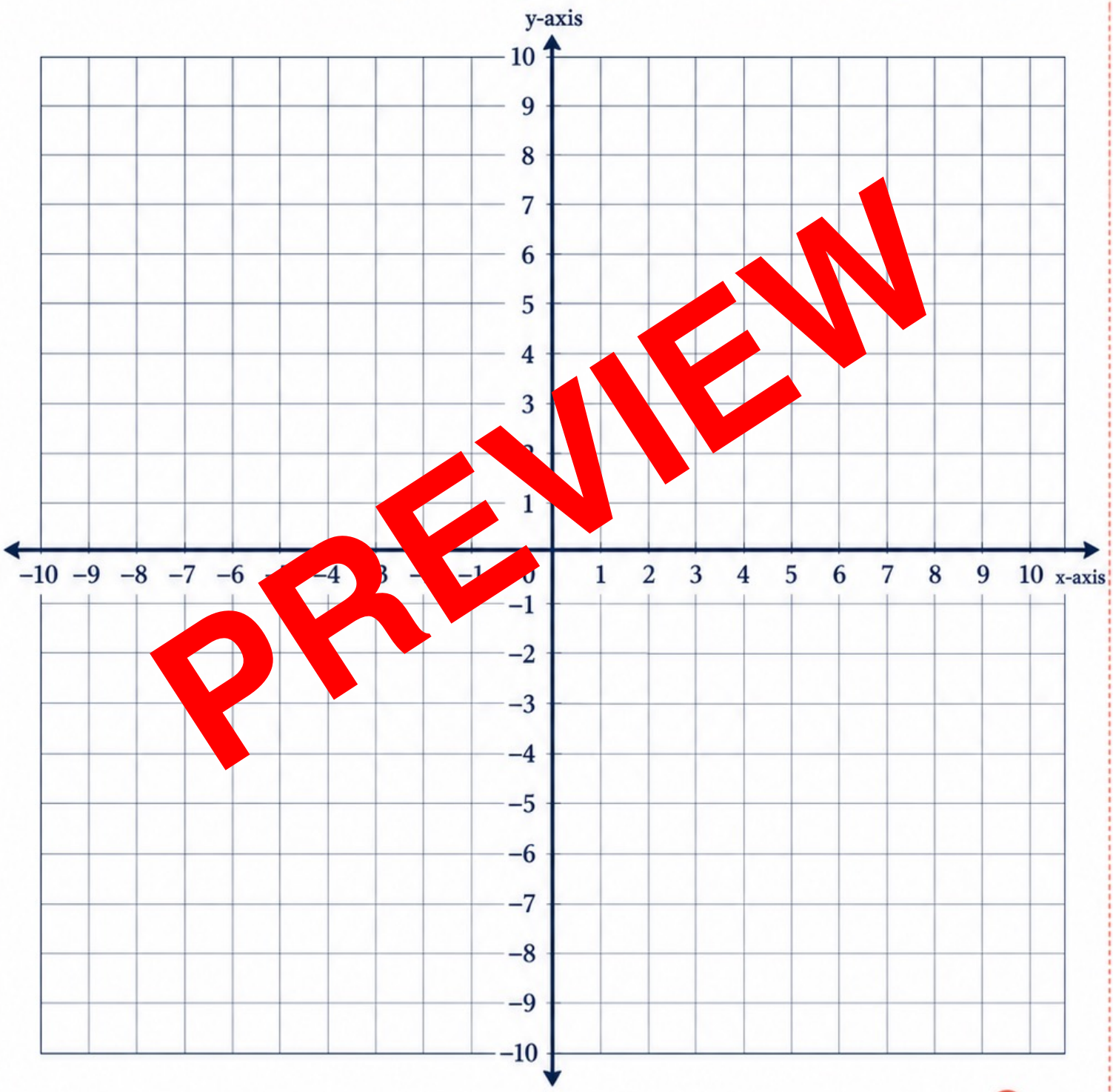
MY FLEET

Captain: _____

 Scout — 2 points

 Cruiser — 3 points

 Explorer — 4 points

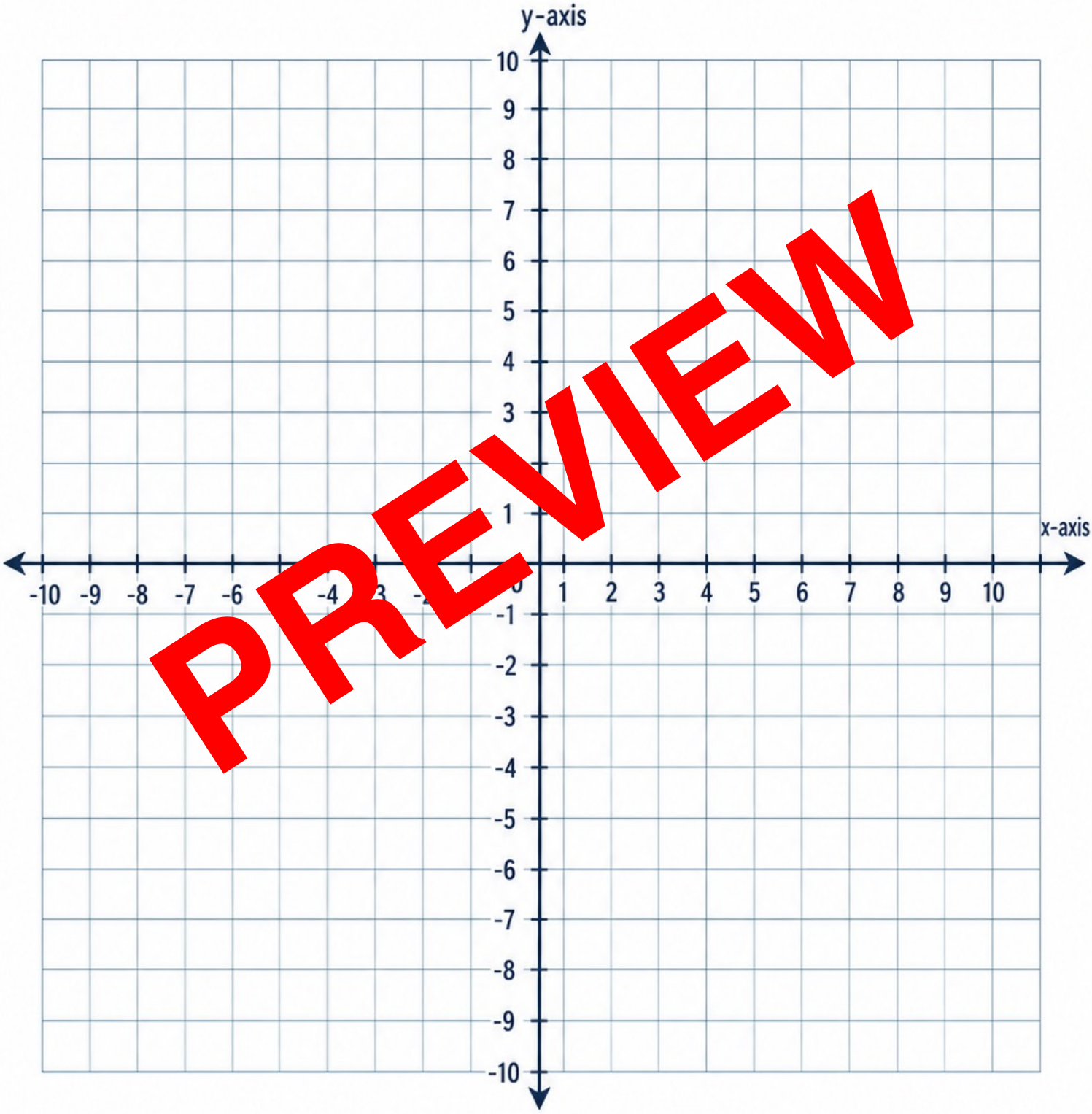


Draw your ships secretly. Record every occupied coordinate before play.

COORDINATE FLEET CHALLENGE

OPPONENT'S OCEAN

Captain: _____



Mark each call: ● HIT ✕ MISS

COORDINATE FLEET CHALLENGE

MISSION LOG

Captain: _____

TURN	COORDINATE	HIT OR MISS?	QUICK CHECK
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

1. What signs describe a point in Quadrant II?

   _____

2. What signs describe a point in Quadrant IV?

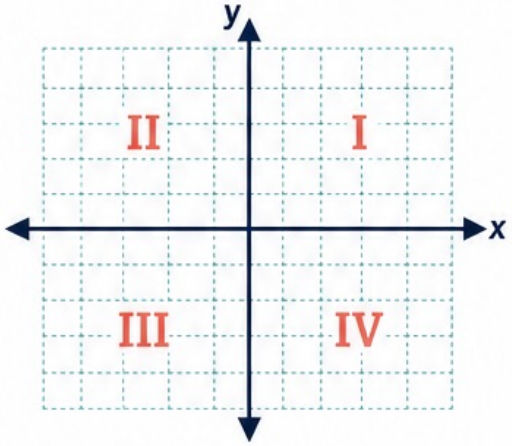
   _____

3. Which axis contains points where y = 0?

   _____

4. Write one coordinate that lies in Quadrant III.

   _____



Name: _____

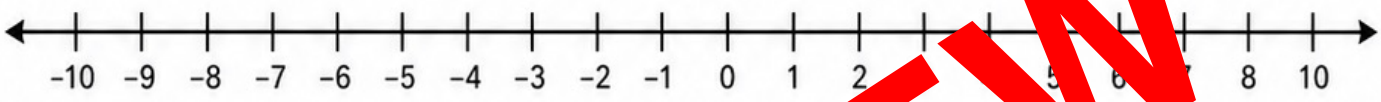
NUMBER LINE FOUNDATIONS

LOCATE & LABEL

Plot and label each listed integer on the correct number line.

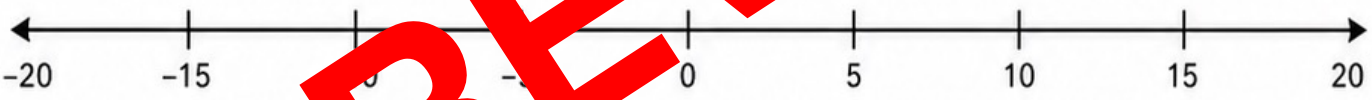
A. -10 to 10

-8, -3, 0, 4, 9



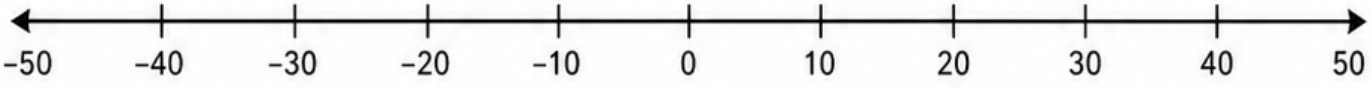
B. -20 to 20, counting by 5

-15, -5, 10, 20



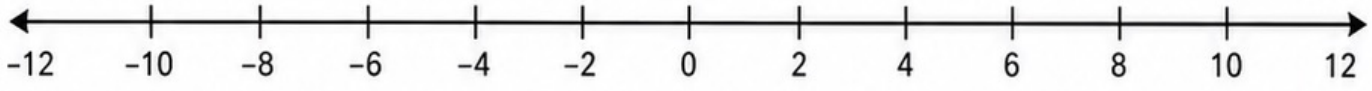
C. -50 to 5 counting by 10

-40, -10, 50



D. -12 to 12, counting by 2

-12, -6, 2, 8



Name: ANSWERS

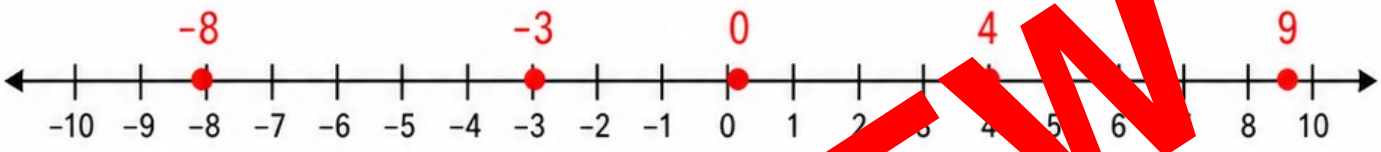
NUMBER LINE FOUNDATIONS

LOCATE & LABEL

Plot and label each listed integer on the correct number line.

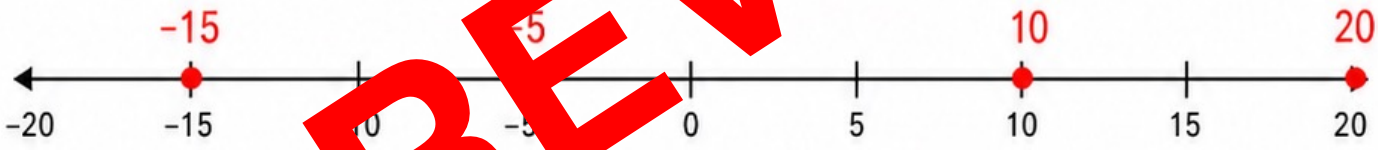
A. -10 to 10

-8, -3, 0, 4, 9



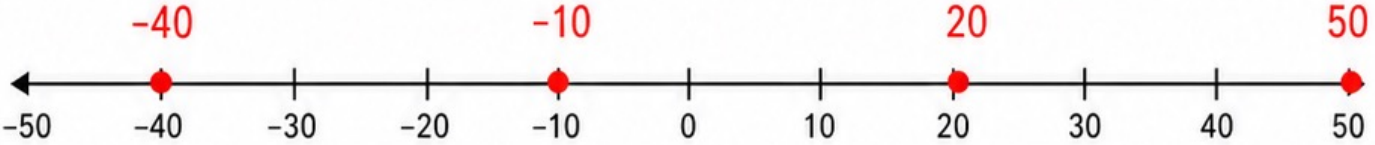
B. -20 to 20, counting by 5

-15, -5, 10, 20



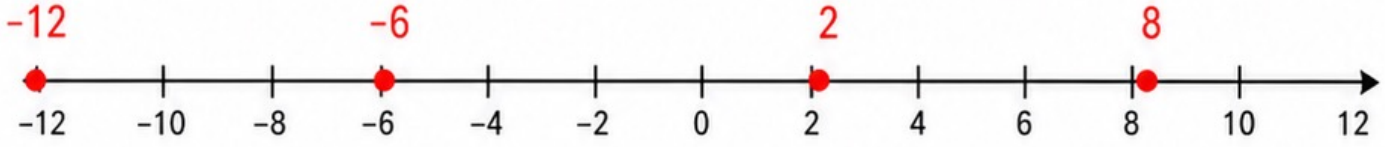
C. -50 to 5 unting by 10

-40, -10, 50



D. -12 to 12, counting by 2

-12, -6, 2, 8



Name: _____

NUMBER LINE FOUNDATIONS

COMPARE & ORDER

1. Write <, > or =.

a. −4 ___ 2

b. −9 ___ −3

c. 0 ___ −6

d. −12 ___ −12

2. Order from least to greatest.

a. 5, −3, 0, −8, 2

_____

b. −14, −6, −19, −1

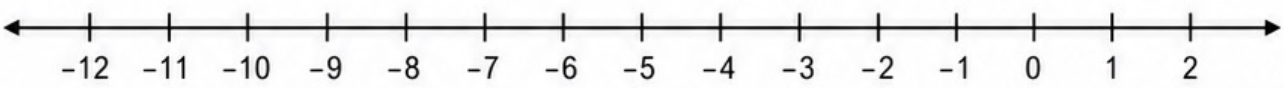
_____

3. Order from greatest to least.

−2, 7, [illegible] 0

_____

4. Which is greater: −5 or −11? Explain using a number line.



_____

_____

_____

_____

Name: ANSWERS

NUMBER LINE FOUNDATIONS

COMPARE & ORDER

1. Write <, > or =.

a. −4 **<** 2

b. −9 **<** −3

c. 0 **>** −6

d. −12 **=** −12

2. Order from least to greatest.

a. 5, −3, 0, −8, 2

−8, −3, 0, 2, 5

b. −14, −6, −19, −1

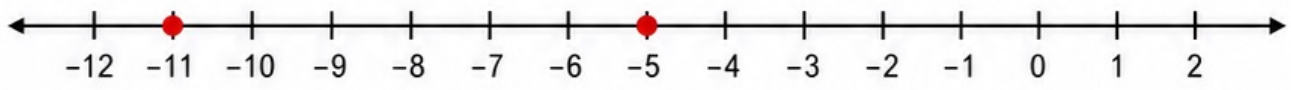
−19, −14, −6, −1

3. Order from greatest to least.

−2, 7, −9, 0

7, 0, −2, −9

4. Which is greater: −5 or −11? Explain using a number line.



−5 is greater because it lies farther right on the number line.

Name: _____

TEMPERATURE & ELEVATION

READ THE DATA

Complete the change column. Use + for a rise and − for a fall.

PLACE	MORNING	AFTERNOON	CHANGE
Hobart	3°C	−2°C	
Alice Springs	−1°C	9°C	
Canberra	0°C	−6°C	
Thredbo	°C	−3°C	

1. Which place had the coldest afternoon temperature?

_____

2. Which place had the greatest temperature rise?

_____

3. Order the afternoon temperatures from coldest to warmest.

_____

4. Explain what a change of −6°C means.

_____

_____

_____

_____

Name: ANSWERS

TEMPERATURE & ELEVATION

READ THE DATA

Complete the change column. Use + for a rise and − for a fall.

PLACE	MORNING	AFTERNOON	CHANGE
Hobart	3°C	−2°C	−5°C
Alice Springs	−1°C	9°C	0°C
Canberra	0°C	−6°C	−6°C
Thredbo	5°C	−3°C	+5°C

1. Which place had the coldest afternoon temperature?

   Canberra

2. Which place had the greatest temperature rise?

   Alice Springs

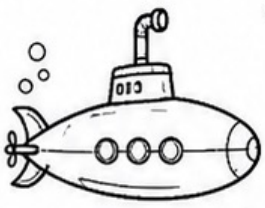
3. Order the afternoon temperatures from coldest to warmest.

   −6°C, −3°C, −2°C, 9°C

4. Explain what a change of −6°C means.

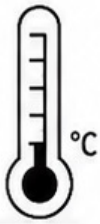
   The temperature fell by 6°C.

Name: _____

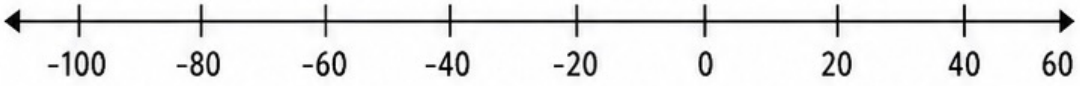


TEMPERATURE & ELEVATION
INTEGER JOURNEYS

Show each journey on the number line. Then write the final integer.

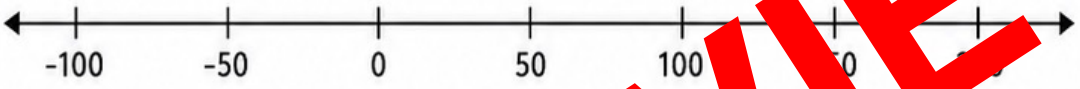


1. A submarine starts at -40 m and rises 15 m.



FINAL INTEGER

2. A balloon is at 120 m and descends 170 m.

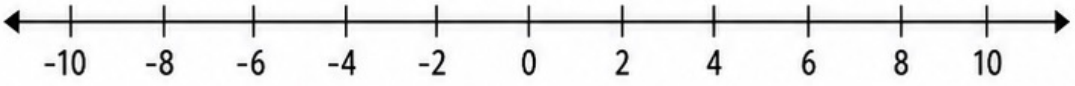


FINAL INTEGER

3. The temperature is -7°C and rises [illegible]°C.

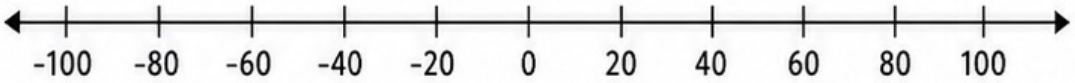
FINAL INTEGER

4. A lift starts at level 3 and goes down 8 levels.



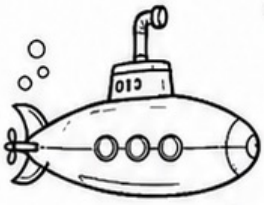
FINAL INTEGER

5. A trail starts at 25 m, descends 60 m, then rises 20 m.

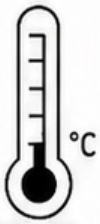


FINAL INTEGER

Name: ANSWERS



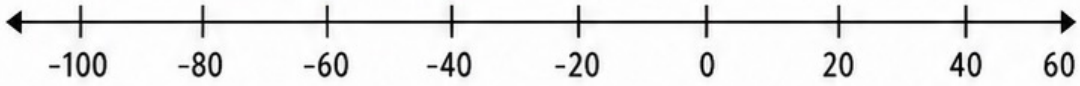
TEMPERATURE & ELEVATION
INTEGER JOURNEYS



Show each journey on the number line. Then write the final integer.

1. A submarine starts at -40 m and rises 15 m.

-40 → -25

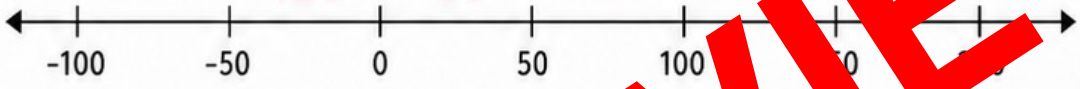


FINAL INTEGER

-25 m

2. A balloon is at 120 m and descends 170 m.

120 → -50



FINAL INTEGER

-50 m

3. The temperature is -7°C and rises 12°C.

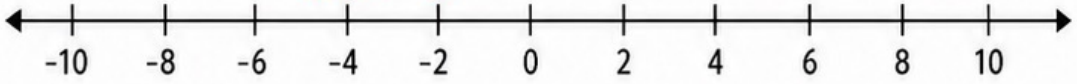
-7 → 5

FINAL INTEGER

5°C

4. A lift starts at level 3 and goes down 8 levels.

3 → -5

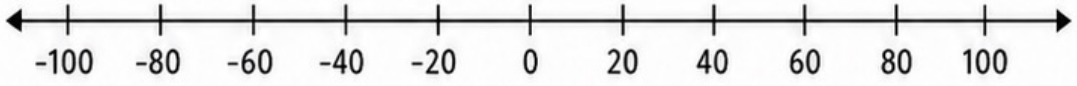


FINAL INTEGER

-5

5. A trail starts at 25 m, descends 60 m, then rises 20 m.

25 → -35 → -15



FINAL INTEGER

-15 m

Name: _____

DEBITS & CREDITS

— RUNNING BALANCE —

CREDIT

DEBIT

A credit adds to a balance. A debit subtracts from a balance.

TRANSACTION	CHANGE	RUNNING BALANCE
Opening balance	—	$65
Weekend job	+$40	
Sports shoes	-$28	
Movie ticket	$1	
Refund	+$12	
Bike repair	-$50	

1. What was t highest balance? _____

2. Did the balance ever become negative? Explain.

_____

_____

3. What was the final balance? _____

4. What does a debit do to the balance?

_____

_____

Name: ANSWERS

DEBITS & CREDITS

— RUNNING BALANCE —

CREDIT

DEBIT

A credit adds to a balance. A debit subtracts from a balance.

TRANSACTION	CHANGE	RUNNING BALANCE
Opening balance	—	$65
Weekend job	+$40	$105
Sports shoes	-$28	$77
Movie ticket	$15	$62
Refund	+$12	$74
Bike repair	-$50	$24

1. What was the highest balance? $105

2. Did the balance ever become negative? Explain.

   No. The lowest balance was $24.

3. What was the final balance? $24

4. What does a debit do to the balance?

   A debit subtracts from and decreases the balance.

Name: _____

DEBITS & CREDITS

INTEGER STORIES

Write one signed integer for each situation.

1. You owe $18.
2. You deposit $25.
3. A $7 account fee is charged.
4. You receive a $12 refund.
5. A team loses 5 points.
6. A team gains 9 points.
7. A diver is 30 m below sea level.
8. A hiker is 14 m above sea level.

9. Sort the eight integers into the two groups.

NEGATIVE	POSITIVE

10. Write one new real-life example of a negative integer.

_____

_____

_____

Name: ANSWERS

DEBITS & CREDITS

INTEGER STORIES

Write one signed integer for each situation.

1. You owe $18. **-18**
2. You deposit $25. **+25**
3. A $7 account fee is charged. **-7**
4. You receive a $12 refund. **+12**
5. A team loses 5 points. **-5**
6. A team gains 9 points. **+9**
7. A diver is 30 m below sea level. **-30**
8. A hiker is 14 m above sea level. **+14**

9. **Sort the eight integers into the two groups.**

NEGATIVE	POSITIVE
-18, -7, -5, -30	+25, +12, +9, +14

10. **Write one new real-life example of a negative integer.**

Example: a temperature of -6°C. _____

_____

_____

Name: _____

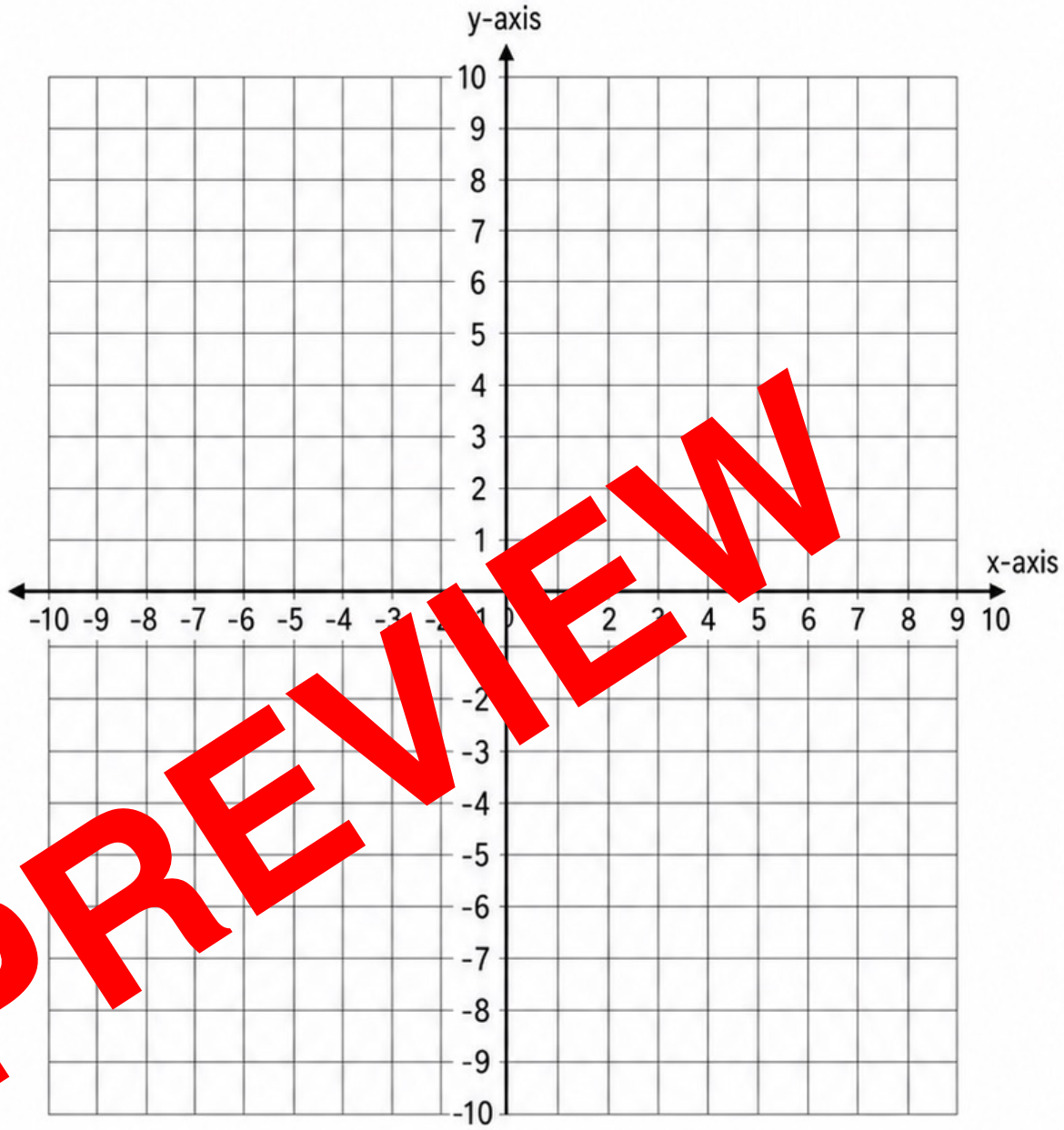
COORDINATES & QUADRANTS

N
W E
S

PLOT THE POINTS

Plot and label each point on the grid.

- A(-6, 4)
- B(3, 5)
- C(7, -2)
- D(-4, -6)
- E(0, 3)
- F(5, 0)



1. Which point is in Quadrant I? _____
2. Which point is in Quadrant II? _____
3. Which point is in Quadrant III? _____
4. Which point is in Quadrant IV? _____
5. Which point lies on the y-axis? _____
6. Which point lies on the x-axis? _____

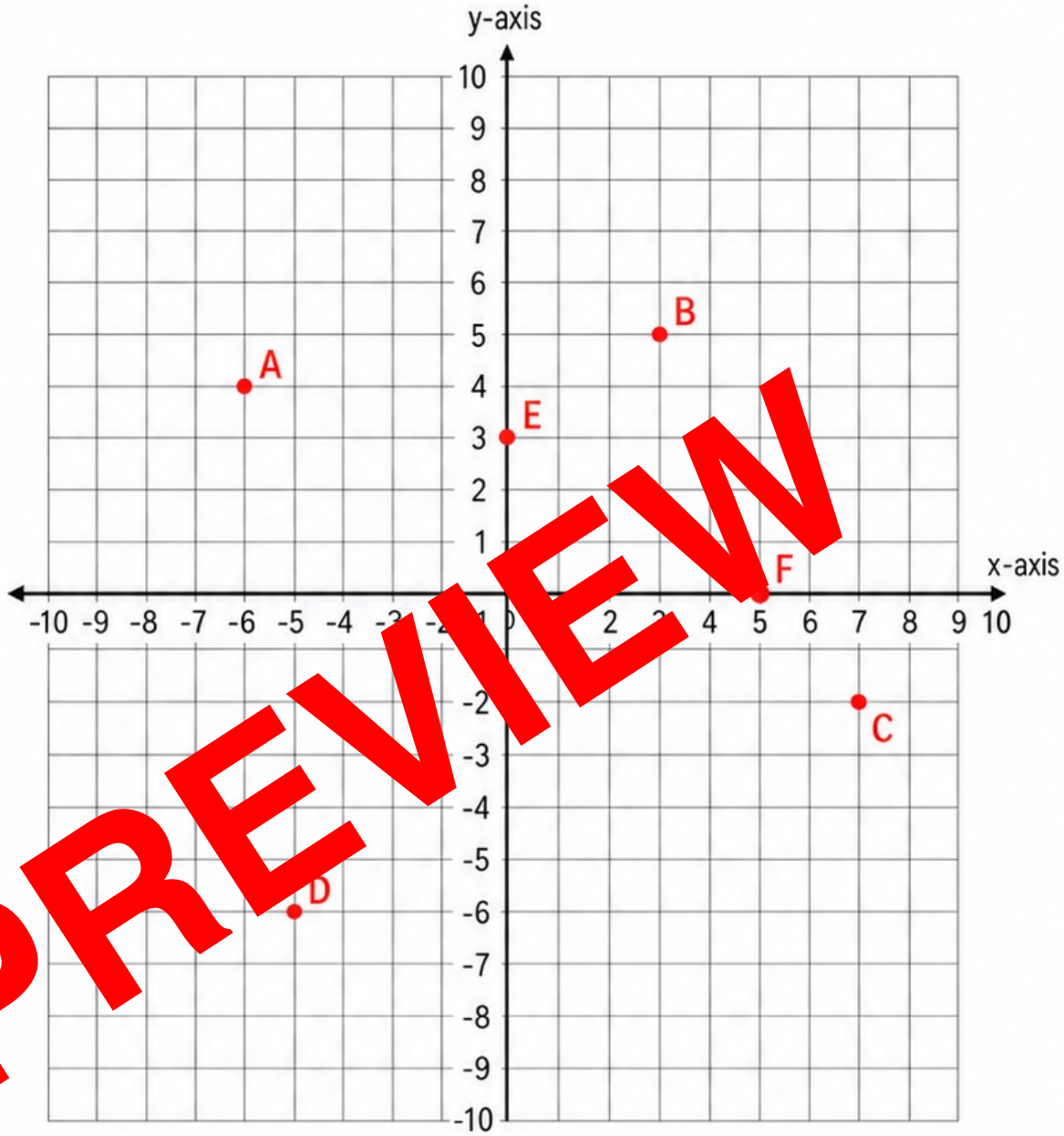
Name: ANSWERS

COORDINATES & QUADRANTS

PLOT THE POINTS

Plot and label each point on the grid.

- A(-6, 4)
- B(3, 5)
- C(7, -2)
- D(-4, -6)
- E(0, 3)
- F(5, 0)



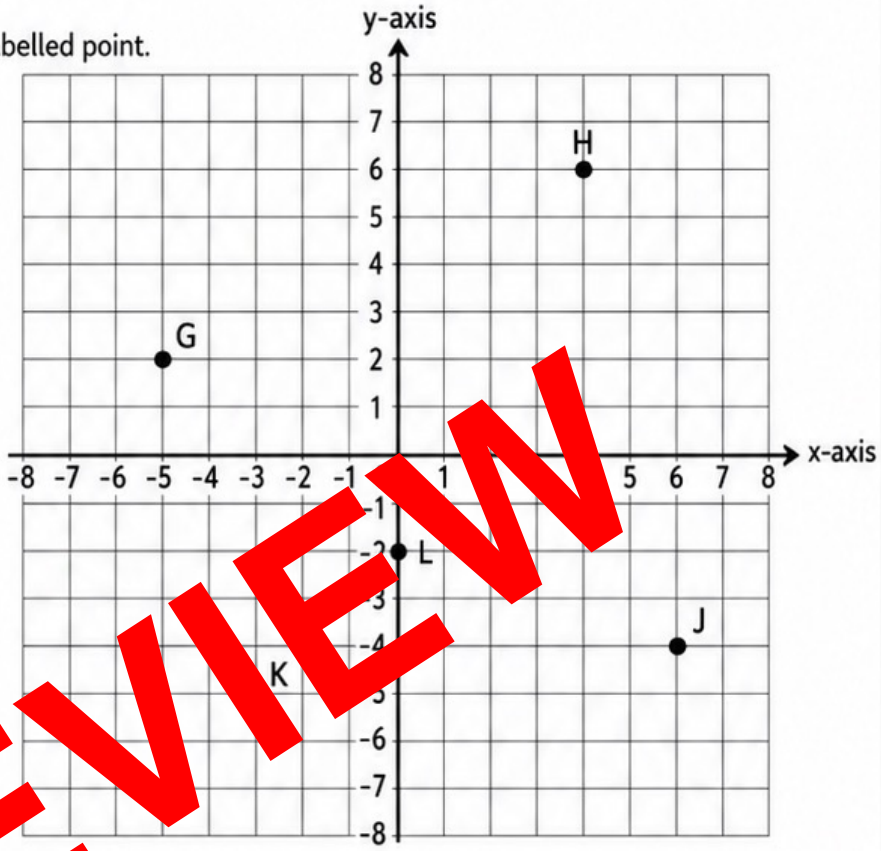
1. Which point is in Quadrant I? B
2. Which point is in Quadrant II? A
3. Which point is in Quadrant III? D
4. Which point is in Quadrant IV? C
5. Which point lies on the y-axis? E
6. Which point lies on the x-axis? F

Name: _____

COORDINATES & QUADRANTS

READ & CONNECT

1. Write the coordinate and quadrant for each labelled point.



G(-5, 2)

Coordinate: _____ Quadrant: _____

H(4, 6)

Coordinate: _____ Quadrant: _____

J(6, -4)

Coordinate: _____ Quadrant: _____

K(-3, -5)

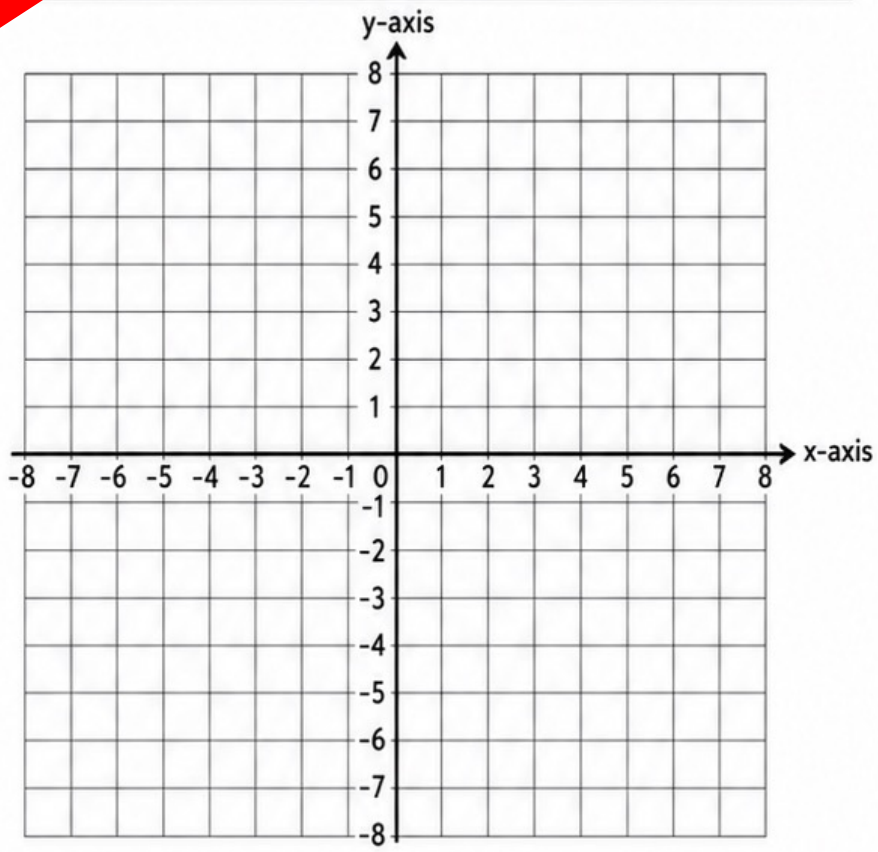
Coordinate: _____ Quadrant: _____

L(0, -2)

Coordinate: _____ Quadrant: _____

---

2. Plot and connect the points in order.
Name the shape.



P(-5, -3)

Q(-5, 4)

R(2, 4)

S(2, -3)

P(-5, -3)

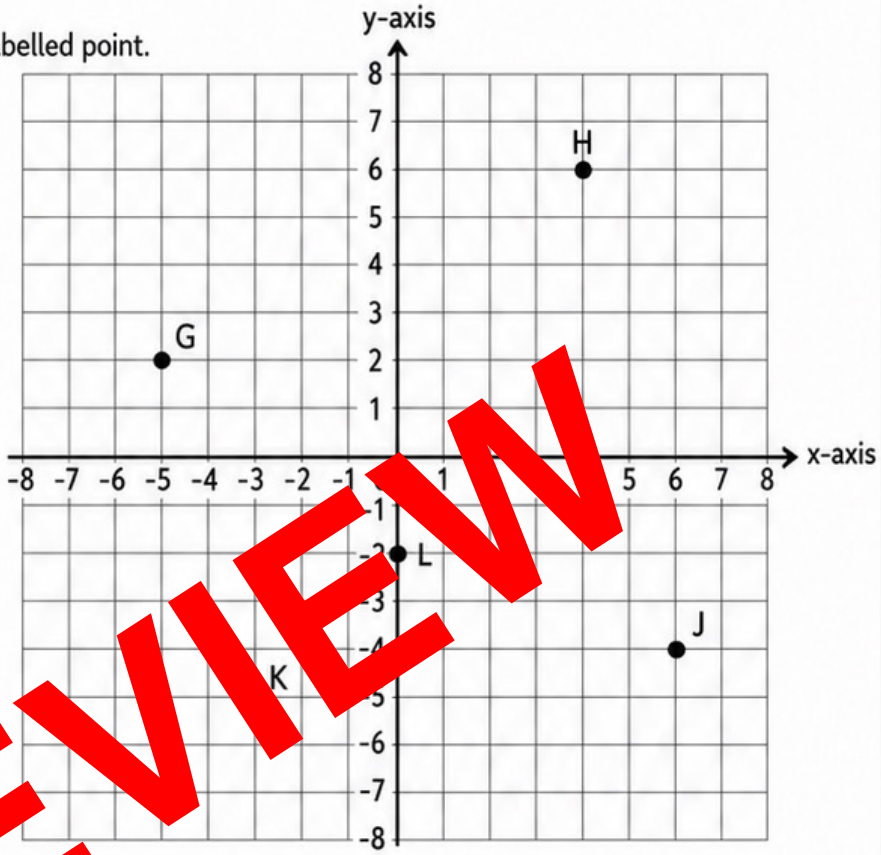
Shape: _____

Name: ANSWERS

COORDINATES & QUADRANTS

READ & CONNECT

1. Write the coordinate and quadrant for each labelled point.



G(-5, 2)

Coordinate: (-5, 2) Quadrant: II

H(4, 6)

Coordinate: (4, 6) Quadrant: I

J(6, -4)

Coordinate: (6, -4) Quadrant: IV

K(-3, -5)

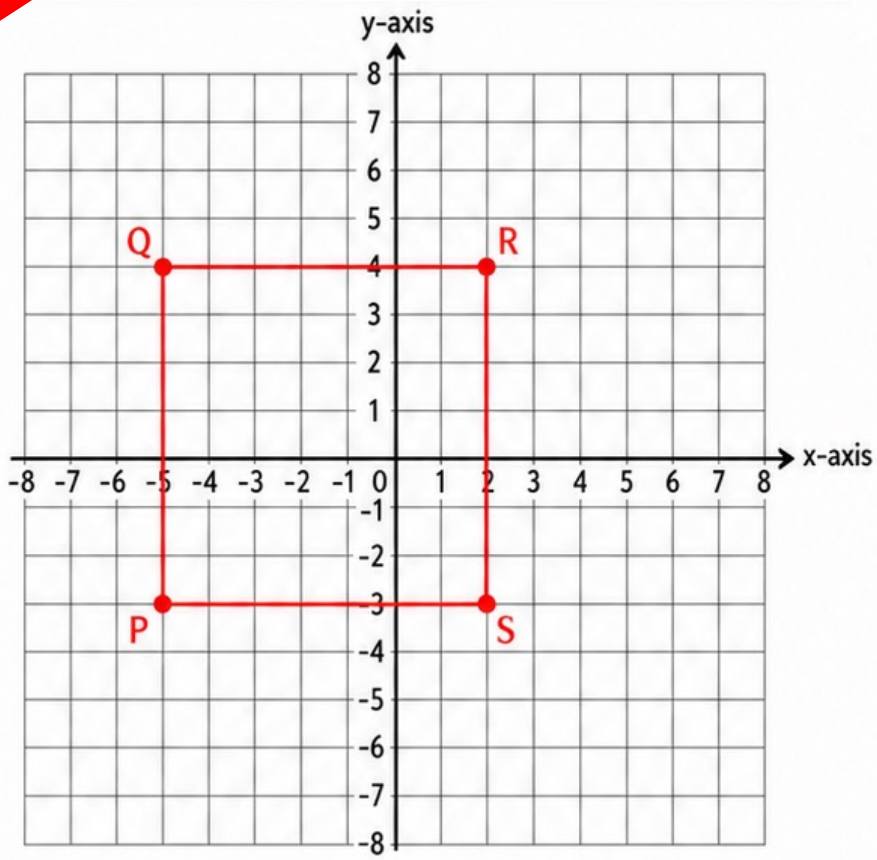
Coordinate: (-3, -5) Quadrant: III

L(0, -2)

Coordinate: (0, -2) Quadra ax

---

2. Plot and co ct the oint order.
Name the sh



P(-5, -3)

Q(-5, 4)

R(2, 4)

S(2, -3)

P(-5, -3)

Shape: rectangle

Name: _____

SECRET INTEGER CODE

DECODE

Use the coordinate key to decode the message.

LETTER	COORDINATE	LETTER	COORDINATE	LETTER	COORDINATE
A	(-4, 4)	K	(-4, 0)	U	(-4, -4)
B	(-2, 4)	L	(-2, 0)	V	(-2, -4)
C	(0, 4)	M	(0, 0)	W	(0, -4)
D	(2, 4)	N	(2, 0)	X	(2, -4)
E	(4, 4)	O	(4, 0)	Y	(4, -4)
F	(-4, 2)	P	(-4, -2)	Z	(0, -6)
G	(-2, 2)	Q	(-2, -2)		
H	(0, 2)	R	(0, -2)		
I	(2, 2)	S	(2, -2)		
J	(4, 2)	T	(4, -2)		

(-2, 4) (4, 4) (-2, 0) (4, 0) (0, -4)

(0, -6) (4, 4) (0, -2) (4, 0)

Name: _____

ANSWERS

SECRET INTEGER CODE

DECODE

Use the coordinate key to decode the message.

LETTER	COORDINATE	LETTER	COORDINATE	LETTER	COORDINATE
A	(-4, 4)	K	(-4, 0)	U	(-4, -4)
B	(-2, 4)	L	(-2, 0)	V	(-2, -4)
C	(0, 4)	M	(0, 0)	W	(0, -4)
D	(2, 4)	N	(2, 0)	X	(2, -4)
E	(4, 4)	O	(4, 0)	Y	(4, -4)
F	(-4, 2)	P	(-4, -2)	Z	(0, -6)
G	(-2, 2)	Q	(-2, -2)		
H	(0, 2)	R	(0, -2)		
I	(2, 2)	S	(2, -2)		
J	(4, 2)	T	(4, -2)		

(-2, 4) (4, 4) (-2, 0) (4, 0) (0, -4)

B E L O W

(0, -6) (4, 4) (0, -2) (4, 0)

Z E R O

BELOW ZERO

Name: _____

SECRET INTEGER CODE

CREATE

Use the coordinate key from page 1.

1. Write a message of 6 to 10 letters.

MY MESSAGE

2. Encode each letter as an ordered pair.

COORDINATE PAI

3. Swap with a partner a eco

NER'S MESSAGE

4. Reflection

a. Which coordinate signs appear in Quadrant II?

_____

_____

b. Which coordinate signs appear in Quadrant IV?

_____

_____

c. What is special about coordinates on an axis?

_____

_____

Name: _____

SECRET INTEGER CODE

CREATE

Use the coordinate key from page 1.

ANSWERS

1. Write a message of 6 to 10 letters.

MY MESSAGE

M	A	T	H	S	R	O	C	K	S

2. Encode each letter as an ordered pair.

COORDINATE PAIR

(0,0)	(-4,4)	(4,-2)	(0,2)	(2,-2)	[illegible]	[illegible]	(0,4)	(-4,0)	(2,-2)

3. Swap with a partner and decode.

PARTNER'S MESSAGE

M	[illegible]	T	H	S	R	O	C	K	S

4. Reflection

a. Which coordinate signs appear in Quadrant II?

Quadrant II has negative x and positive y.

b. Which coordinate signs appear in Quadrant IV?

Quadrant IV has positive x and negative y.

c. What is special about coordinates on an axis?

A point on an axis has one coordinate equal to zero.

Name: _____

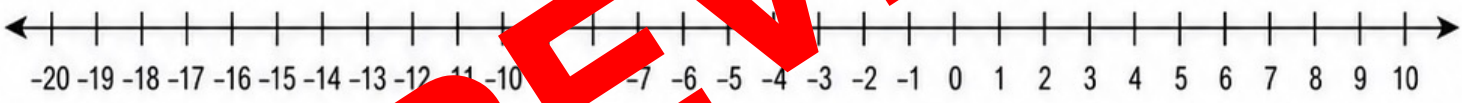
AURORA BASE INTEGER MISSION

PART 1 — TEMPERATURE DATA

10 MARKS

TIME	TEMPERATURE
6 am	−14°C
9 am	−8°C
12 noon	2°C
3 pm	−3°C
6 pm	−11°C

1. Plot and label all five temperatures on the number line. (5 marks)



2. Write <, > or = in each box. (4 marks)

a. −14 ___ −8

b. −3 ___ 2

c. −11 ___ −14

d. 0 ___ −3

3. Order −8, 2, −14, −3, −11 from least to greatest. (1 mark)

_____

4. Write the opposite of −11. (1 mark) _____

5. Explain what 0°C means in this data set. (1 mark)

_____

_____

Name: _____

AURORA BASE INTEGER MISSION

ANSWERS

PART 1 — TEMPERATURE DATA

10 MARKS

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6 am	−14°C
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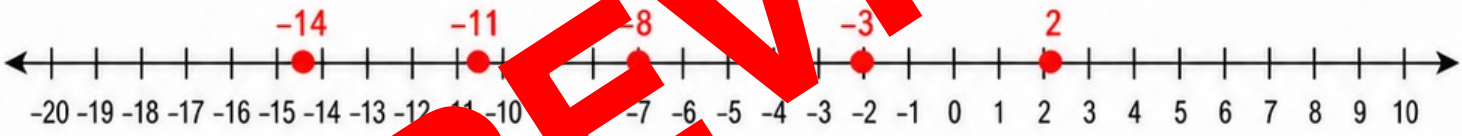


2. Write <, > or = in each box. (4 marks)

a. −12 < −5

b. −3 < 4

c. 0 > −7

d. −6 > −9

3. Order −8, 2, −14, −3, −11 from least to greatest. (1 mark)

−14, −11, −8, −3, 2

4. Write the opposite of −11. (1 mark)

11

5. Explain what 0°C means in this data set. (1 mark)

0°C is the freezing point and is neither positive nor negative.

Name: _____

AURORA BASE INTEGER MISSION

PART 2 — CONTEXTS & COORDINATES

10 MARKS

1. A supply lift starts at -35 m and rises 20 m. What is its final position? (1 mark)

2. A snow vehicle is 12 m above base level and descends 18 m. What is its final position? (1 mark)

3. The station account has $40, then a $65 debit is recorded. What is the new bala[illegible]? (1 [illegible]rk)

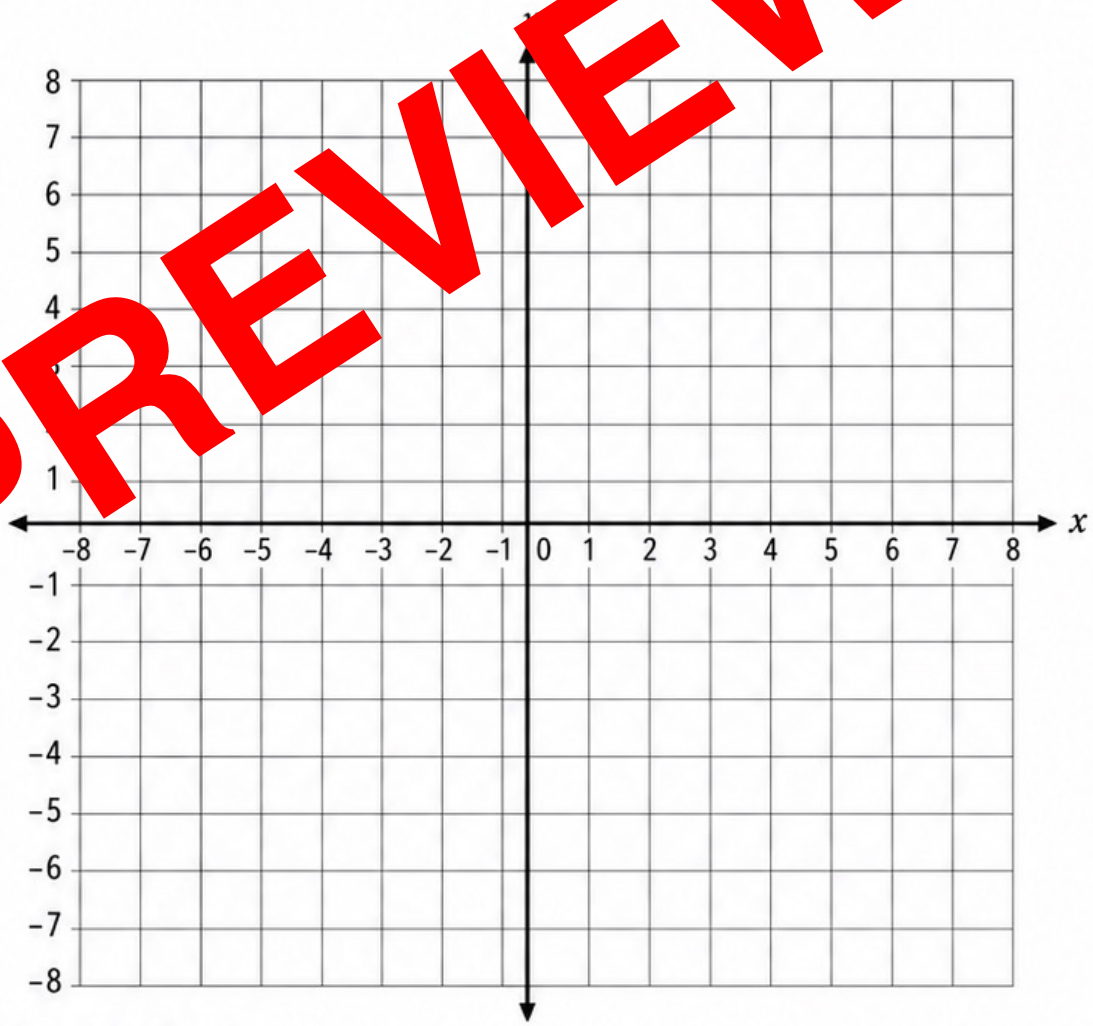
4. Plot and label each location. (4 marks)

Supply S(-5, 4)

Lab L(3, 6)

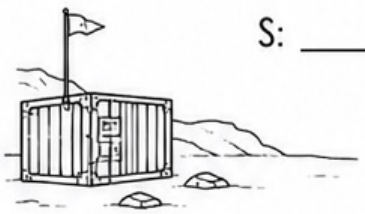
Drill D(6, -3)

Shelter H(-4, [illegible])

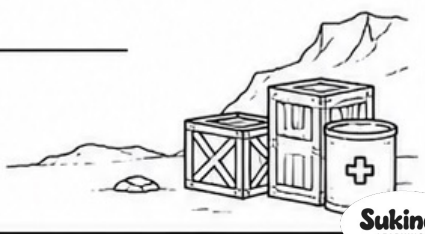


5. Write the quadrant for S, L and D. (3 marks)

S: _____ L: _____ D: _____



→ *x*-axis ↑ *y*-axis



Name: _____

AURORA BASE INTEGER MISSION

PART 2 — CONTEXTS & COORDINATES

ANSWERS

10 MARKS

1. A supply lift starts at -35 m and rises 20 m. What is its final position? (1 mark)

-15 m

2. A snow vehicle is 12 m above base level and descends 18 m. What is its final position? (1 mark)

-6 m

3. The station account has $40, then a $65 debit is recorded. What is the new balance? (1 mark)

-$25

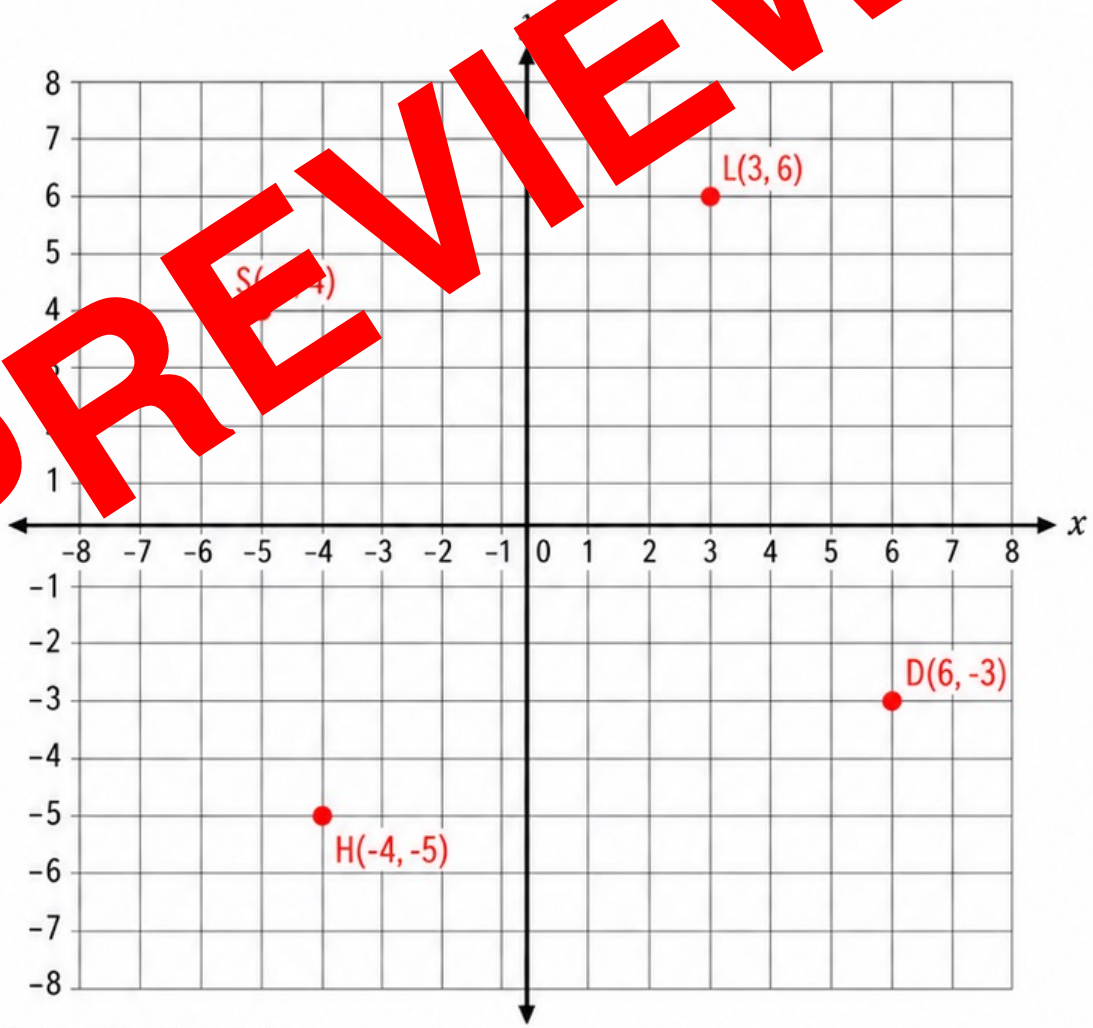
4. Plot and label each location. (4 marks)

Supply S(-5, 4)

Lab L(3, 6)

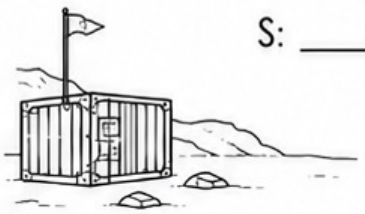
Drill D(6, -3)

Shelter H(-4, -5)



5. Write the quadrant for S, L and D. (3 marks)

S: II L: I D: IV



→ x-axis ↑ y-axis

Name: _____

AURORA BASE INTEGER MISSION

PART 3 — REASONING

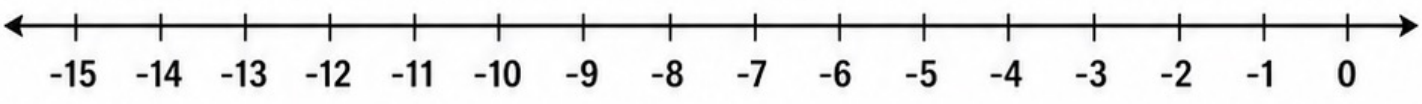
5 MARKS

1. Explain why -4 is greater than -11. (1 mark)

2. Write a realistic Antarctic context represented by -18. (1 mark)

3. Describe the movement from (-3, 2) t[illegible], -5). D[illegible]se about direction and distance. (2 marks)

4. Write and justify one true comparison using two negative integers. Use a number line in your explanation. (1 mark)



Name: _____

AURORA BASE INTEGER MISSION

ANSWERS

PART 3 — REASONING

5 MARKS

1. Explain why -4 is greater than -11. (1 mark)

   -4 is greater because it is farther right on the number line than -11.

2. Write a realistic Antarctic context represented by -18. (1 mark)

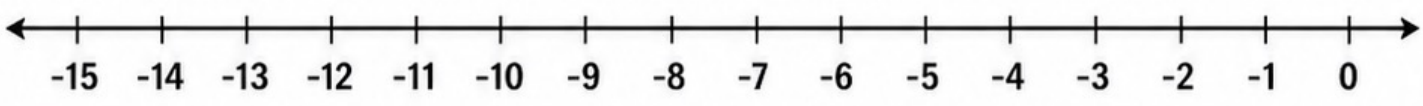
   A temperature of -18°C.

3. Describe the movement from (2, 2) to (-4, -5). Be precise about direction and distance. (2 marks)

   7 units right and 7 units down.

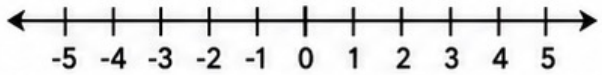
4. Write and justify one true comparison using two negative integers. Use a number line in your explanation. (1 mark)

   -3 > -9 because -3 is farther right on the number line.



NEGATIVE INTEGERS RUBRIC

Student: _____ Date: _____



CRITERIA	BEGINNING	DEVELOPING	ACHIEVING	CONFIDENT	EXCEEDING
Represents and locates integers	Needs support to identify or place integers.	Places some integers with partial accuracy.	Accurately represents and locates familiar integers.	Accurately works across varied scales and values.	Generalises patterns and justifies precise placement.
Compares and orders integers	Needs support to compare integer values.	Compares some integers using prompts.	Correctly compares and orders integer sets.	Efficiently compares complex sets and explains choices.	Uses number-line structure to justify and generalise.
Interprets real-world contexts	Needs support to connect integers to contexts.	Interprets simple contexts with prompts.	Correctly interprets temperature, elevation and money contexts.	Connects multiple contexts and checks reasonableness.	Creates and evaluates sophisticated integer contexts.
Uses coordinates and quadrants	Needs support to read or plot coordinates.	Reads or plots some points with prompts.	Correctly reads, plots and identifies quadrants.	Uses axes, origin and sign patterns confidently.	Solves and explains unfamiliar coordinate problems.
Explains mathematical reasoning	Provides little or unclear reasoning.	Gives a partial explanation.	Explains thinking using suitable mathematical language.	Justifies methods with accurate representations.	Compares methods, generalises and communicates precisely.

Negative Integers

Sukindi
LEARNING

Learning Goals

By the end of this lesson, you can:

- recognise negative integers, zero and positive integers
- locate, compare and order integers on a number line
- interpret integers in real-life contexts
- plot and read ordered pairs in four quadrants

What Is an Integer?

An integer is a whole number, its opposite, or zero.

Examples: ... −3, −2, −1, 0, 1, 2, 3 ...

Integers do not include fractions or decimals.

Think: Complete steps left or right from zero.

Positive, Negative and Zero

Positive integers are greater than zero: +1, +2, +3 ...

Negative integers are less than zero: -1, -2, -3 ...

Zero is neither positive nor negative.

Absolute sign is often omitted, but the value stays positive.

Opposites and Distance

Opposites are the same distance from zero on different sides.

The opposite of 6 is -6. The opposite of -9 is 9.

Distance from zero is always non-negative.

Example: both -4 and 4 are 4 units from zero.

Reading a Number Line

On a horizontal number line, values increase as you move right.

Values decrease as you move left.

Zero separates negative and positive integers.

To locate −5: start at zero and move 5 units left.

Comparing Integers

Farther right means greater.

Example: -2 > -7 because -2 is farther right.

Among negatives, the value closer to zero is greater.

Never compare only the digits: 9 > 3, but -9 < -3.

Ordering a Mixed Set

Order 5, −3, 0, −8, 2 from least to greatest.

Locate each value on the number line.

Read from left to right: −8, −3, 0, 2, 5.

Check: every step moves toward a greater value.

Context: Temperature

Temperatures below 0°C are negative integers.

−12°C is colder than −4°C because −12 is farther left.

A rise of 7°C is a positive change.

A fall of 7°C is a negative change.

Context: Elevation and Depth

Sea level is the reference point, 0 m.

Above sea level: positive elevation.

Below sea level: negative elevation or depth.

Example: −35 m means 35 m below sea level.

Context: Credits and Debts

Credits increase a balance; debits decrease it.

A $30 credit can be represented by +30.

A $45 debit can be represented by -45.

Starting at $20: 20 + (-45) = -25, a $25 debt.

Worked Example: Ordering

Order 4, 6, −9, 0, −2

Step 1: Place the values on a number line.

Step 2: read from left to right.

Solution: −9, −2, 0, 4, 6.

The Cartesian Plane

The Cartesian plane has two perpendicular number lines.

The x-axis runs horizontally, the y-axis runs vertically.

Their intersection is the origin, (0, 0).

The axes divide the plane into four quadrants.

Coordinate Order: x, Then y

An ordered pair is written (x, y).

Move along the x-axis first: right for positive, left for negative.

Then move along the y-axis: up for positive, down for negative.

Example: (3, −2) means 3 right, then 2 down.

Four Quadrants

Quadrant I: (+, +)

Quadrant II: (–, +)

Quadrant III: (–, –)

Quadrant IV: (+, –)

Quadrants are numbered anticlockwise from the top right.

Worked Plot: (-4, 3)

1. Start at the origin.
2. Move 4 units left to x = -4.
3. Move 3 units up to y = 3.

The point is in Quadrant II.

Worked Read: (2, −5)

A point is 2 units right and 5 units down from the origin.

Right gives $x = 2$. Down gives $y = -5$.

The ordered pair is $(2, -5)$.

It lies in Quadrant IV.

Points on Axes

(0, 6) lies on the y-axis because x = 0.

(–7, 0) lies on the x-axis because y = 0.

(0, 0) is the origin.

Points on axes are not in any quadrant.

Connect Coordinates

Plot and connect P(2), (2, R(2 2), , -2), then P.

The ho ontal sides have equal y-values.

Th ver al sid s have equal x-values.

Th onnected shape is a rectangle.

Common Misconceptions

−12 is not greater than −5: it is farther left, so −12 < −5.

Do not swap x and y: always move x first, then y.

Zero is not negative: it is neither positive nor negative.

Use a number line or axes to check each claim.

Guided Practice

Use the integers -8, -3, 4 and 7.

A. Plot them on a number line.

Which is least? Which is greatest?

Write them from greatest to least.

D. Which value is the opposite of -4?

Guided Practice I: Answer

Least: Greatest

Greatest to least: 4, 0, −3, −8.

Opposite of −4: 4.

Read positions from right to left for greatest to least.

Guided Practice 2

At 6 am the temperature is -2°C.

By noon it rises 11°.

What is the noon temperature?

B. At night it falls 3°. What is the night temperature?

Show each signed change.

Guided Practice 2: Answer

Start: –[illegible]°C.

Noon: –[illegible] + 1[illegible] = 4°C.

[illegible]ght: 4 + (–[illegible]) = –5°C.

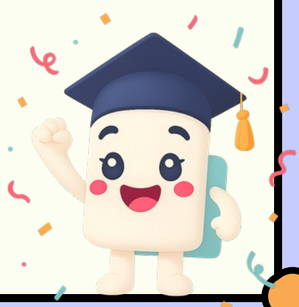
[illegible]em[illegible]cro[illegible]ero during the rise and again during the fall.

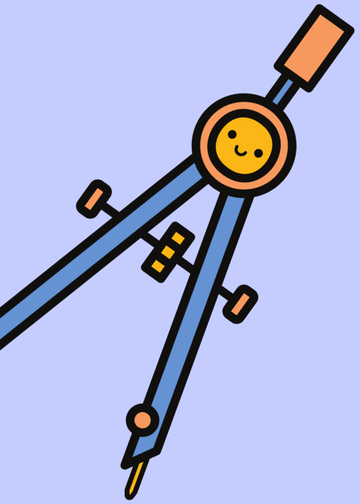
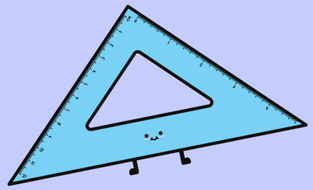
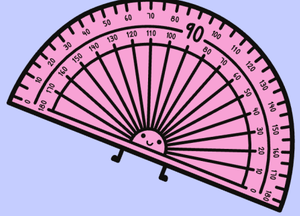
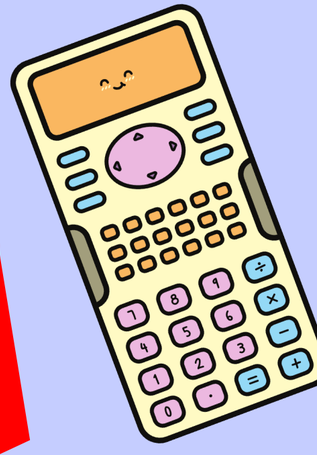
Review

1. Integers include negatives, zero and positives.
2. On a number line, farther right means greater.
3. [illegible] shows position or direction in context.

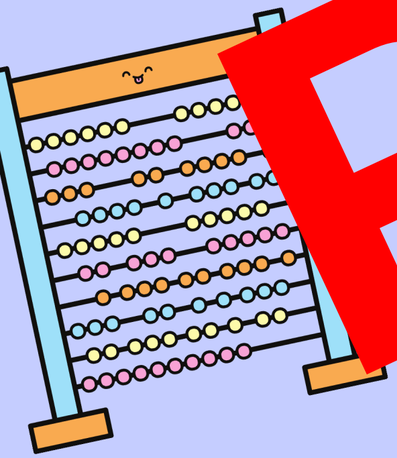
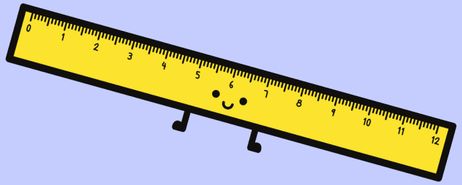
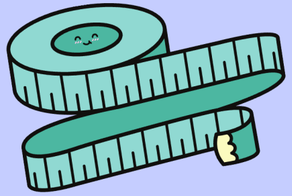
For coordinates, move x first and y second.

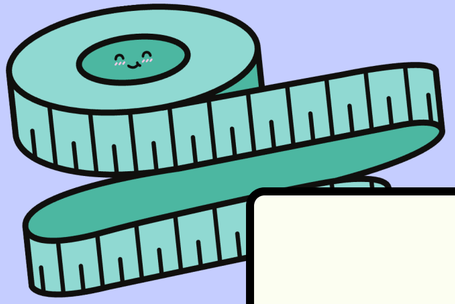
Use a number line or axes to check your reasoning.

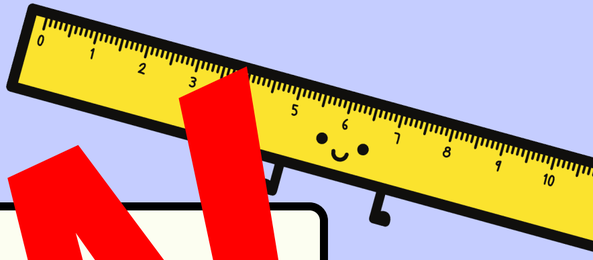


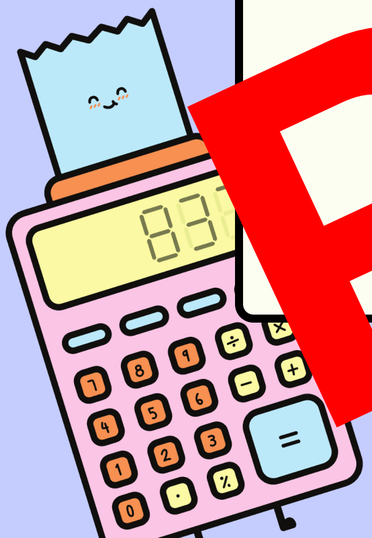
Well done!



Negative Integers Quiz



Question 1 of 10

True or False

Zero is a negative integer.

Answer 1 of 10

Fa

Zero is neither positive nor negative.

Question 2 of 10

Which integer is greatest

A. -8

B. -3

C. 0

D. -12

Answer 2 of 10

C.

ero is rth right an every negative integer.

Question 3 of 10

Write an integer that represents 7 degrees below zero.

Answer 3 of 10

_

elow zero represented with a negative sign.

Question 4 of 10

Which po is farthe ig on c umber line?

A. -2

B. -9

Answer 4 of 10

A.

–2 is further right than –9, so –2 > –9.

Question 5 of 10

True or False

-14 is greater than -6.

Answer 5 of 10

Fa

–14 is farther left, so –14 < –6.

Question 6 of 10

Order these integers from least to greatest:

4, -5, 0, -1

Answer 6 of 10

-5, -1 4

Re their osit ns fr left to right on a number line.

Question 7 of 10

Which quadrant contains (−3, 5)?

A. Quadrant I

B. Quadrant II

C. Quadrant III

D. Quadrant IV

Answer 7 of 10

B. Quadrant II

The x-coordinate is negative and the y-coordinate is positive.

Question 8 of 10

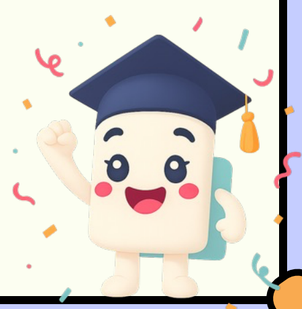
Start at the origin. Move 4 units left and 2 units down.

What ordered pair do you reach?

Answer 8 of 10

(−4, [illegible]

eft m[illegible]es [illegible]egati[illegible]e; down makes y negative.



Question 9 of 10

An account receives a $30 credit and then a $45 debit. What is the balance?

A. $

B. $15

C. -$15

D. -$75

Answer 9 of 10

C. –

30 + (–45) = –15.

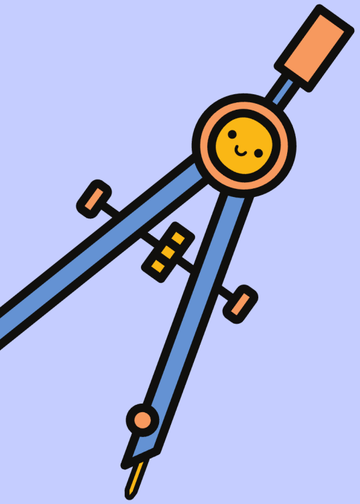
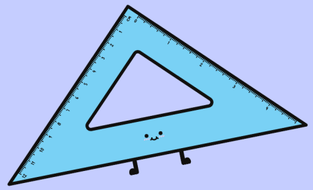
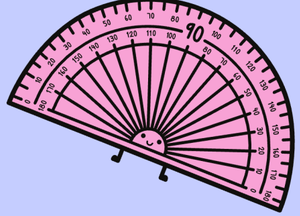
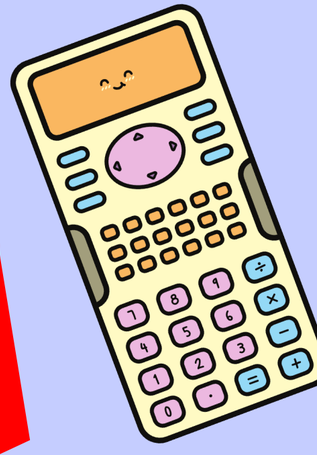
Question 10 of 10

Explain why -3 is greater than -10.

Answer 10 of 10

–3 is farther right on the number line than –10.

–3 is also closer to zero, so –3 > –10.

Well done!