School Name
Mathematics Test 2017

Integers

Year 7

Name_____

Skills and Knowledge Assessed:

- Investigate everyday situations that use integers. Locate and represent these numbers on a number line (ACMNA124)
- Compare, order, add and subtract integers (ACMNA280)
- Carry out the four operations with (rational numbers and) integers, using efficient mental and written strategies and appropriate digital technologies (ACMNA183)

Answer all questions in the spaces provided on this test paper by:

*Writing the answer in the box provided.*

or

Shading in the bubble for the correct answer from the four choices provided.

Show any working out on the test paper.   Calculators are **not** allowed.

Questions 1 – 5 refer to the following.

An electric motor on a freight train has 10 forward and 10 reverse speeds which are controlled by turning a knob clockwise or anti-clockwise on a dial as shown below.

It is currently set at forward 4 (or +4).
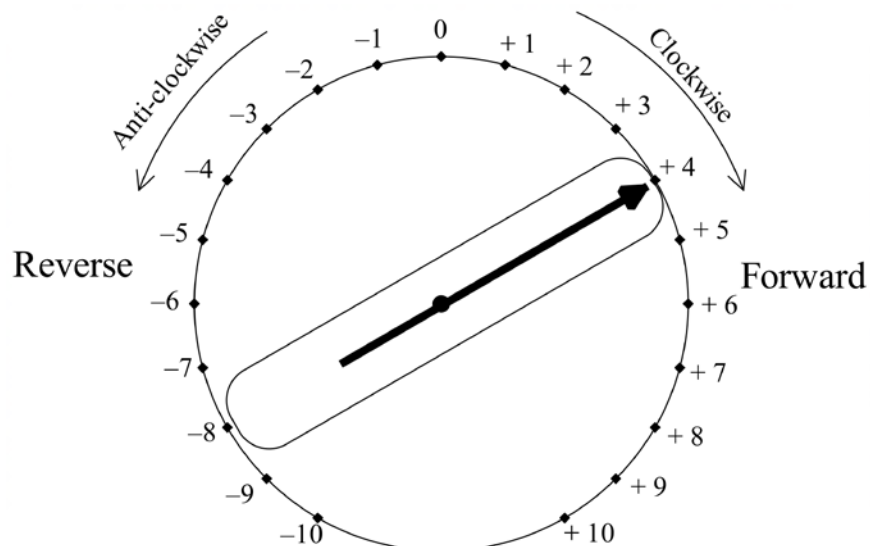
1.	The switch is turned anticlockwise 6 positions from its current setting. What speed will it be set on? ☐ –10 ☐ –6 ☐ –2 ☐ +10
2.	Earlier, the knob was set on a speed of –7 and is moved clockwise 12 positions. What speed will it be set on after this? ☐ –5 ☐ +5 ☐ +7 ☐ +12
3.	The knob was turned from +8 to –6. What turn was made to the knob? ☐ 14 positions anti-clockwise ☐ 2 positions anti-clockwise ☐ 2 positions clockwise ☐ 14 positions clockwise
4.	The knob was turned from –8 to –4. What turn was made to the knob? ☐ 12 positions anti-clockwise ☐ 4 positions anti-clockwise ☐ 2 positions clockwise ☐ 4 positions clockwise
5.	At one time, the knob was set on a speed of +9 and was moved anti-clockwise 7 positions, before again being moved anti-clockwise 8 positions. What speed will it be set on after this? ☐ –8 ☐ –6 ☐ –3 ☐ 0

Questions 6 – 10 refer to the following:

The statement below was provided by Natcom Bank for Elise's Account for March.

Date	Transaction	Balance
3 / 3 / 2017	Opening Balance	$100.00
9 / 3 / 2017	Withdrawal of $60	$40.00
12 / 3 / 2017	Withdrawal of $80	–$40.00
15 / 3 / 2017	Deposit of $30	–$10.00
21 / 3 / 2017	Deposit of $90	
25 / 3 / 2017	Withdrawal of $120	
30 / 3 / 2017		

6.	What is the balance on 21 / 3 / 2017? ☐ –$100.00 ☐ –$80.00 ☐ $80.00 ☐ $100.00
7.	What is the balance on 25 / 3 / 2017?
8.	On the 30 / 3 / 2017 Elise makes a transaction that brings the balance to –$10.00 What was the transaction? ☐ Deposit of $30.00 ☐ Deposit of $50.00 ☐ Withdrawal of $30.00 ☐ Withdrawal of $50.00
	Later in the year her account statement showed the following.

Date	Transaction	Balance
1 / 5 / 2017	Opening balance	
2 / 5 / 2017	Withdrawal of $150	–$70.00
5 / 5 / 2017		–$110.00

9.	What was the opening balance?
10.	What transaction did she make on 5 / 5 / 2017?
11.	$8 - 15 =$
12.	$-9 + 6 =$ ☐ –12 ☐ –6 ☐ –3 ☐ 3
13.	$-7 + (-11) =$
14.	$-12 + 16 =$

15.	$12 + (-20) =$

16.	$8 - (-10)$

☐ –18   ☐ –2   ☐ 2   ☐ 18

17.	$-8 - (-12) =$

18.	$-10 - (-10) =$

19.	$5 - 12 + (-5) =$

☐ –22   ☐ –12   ☐ –2   ☐ 12

| 20.	$-10 - 11 - (-15) + (-6) =$

☐ –12   ☐ –10   ☐ –2   ☐ 2

21.	The dry bed of Lake Eyre in South Australia, which is 15 metres below sea level is the lowest point on the Australian Continent. A temporary tower which is 45 metres tall is erected on the lake bed. What is the height of the tower, relative to sea level?

| 22.	When playing *Excavate and Construct*, Kynan resumes the game with a score of 50 000, then he gains another 45 000 points, before losing 30 000 points and then losing another 75 000 points, at which point he pauses the game. How many points does he have when he pauses?

23. The numbers -18 and -2 are marked on the number line below. What is the third number (labelled *S*) which is marked on the number line?
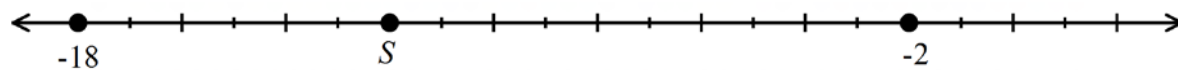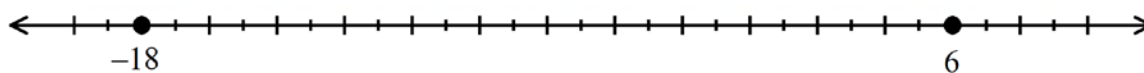

24. Mark the numbers -8 and 6 on the number line below.
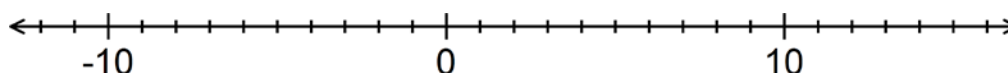
25. What number is halfway between -18 and 6 on the number line?

☐ -12 ☐ -9 ☐ -6 ☐ -3

26. Re-write the numbers $-6, 9, -1, -13$ and 0 in ascending order.

☐ ☐ ☐ ☐ ☐

27. Which statement is correct?

☐ $5 < -6$ ☐ $-6 > -5$

☐ $-5 < -6$ ☐ $6 > -5$

28. Write the next two numbers in the number pattern.

$17, \ 9, \ 1, \ \square \ , \ \square$

29. $-6 \times 9 =$

☐ -54 ☐ -45 ☐ -36 ☐ 54

30.	$-8 \times -7 =$

31.	$12 \times -8 =$

32.	$-4 \times -5 \times -2 =$

       ☐ -54 ☐ -40 ☐ -14 ☐ 20

33.	$(-3)^3 =$

34.	$-63 \div (-9) =$

35.	$-72 \div 8 =$

36.	$84 \div -3 =$

37.	$\dfrac{-80}{-5} =$

38.	$-12 \times 5 \div -10 =$

39.	$-5 \times 3 + 20 =$

40.	$-22 \div (-7 - 4) =$

41.	$\dfrac{-5 - 5 \times 8}{-9} =$

42. Erin plays 9 holes of golf where she scores the points shown in the table relative to par.

Hole	1	2	3	4	5	6	7	8	9
Score	–2	0	–2	–1	–2	–3	–1	2	–2

What is her score after the 9 holes?
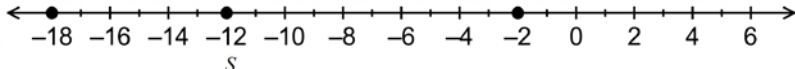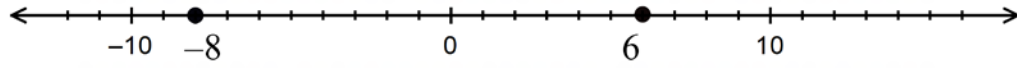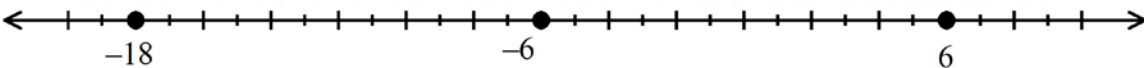
| Year 7 | *Integers* | Non Calculator Section |

ANSWERS

No.	Working and Answer
1.	From +4 anticlockwise 6 = +4 – 6 = –2 **3rd Answer**
2.	–7 + 12 = + 5 **2nd Answer**
3.	From +8 to –6. is anticlockwise 14 positions **1st Answer**.
4.	From –8 to –4 is clockwise 4 positions. **4th Answer**
5.	+ 9 – 7 – 8 = + 2 – 8 = –6 **2nd Answer**
6.	–10 + 90 = **$80.00** **3rd Answer**
7.	80 – 120 = **–$40.00**
8.	From -40 to a balance of – 10 is increase of $30 **1st Answer**
9.	Opening Balance – 150 = –70 OB = –70 +150 = **$80.00**

10.	From –70 to a balance of –110 is decrease of $40 **Withdrawal of $40.00**
11.	$8 - 15 = -7$
12.	$-9 + 6 = -3$ **3rd Answer**
13.	$-7 + (-11) = -7 - 11 = -18$
14.	$-12 + 16 = 4$
15.	$12 + (-20) = 12 - 20 = -8$
16.	$8 - (-10) = 8 + 10 = 18$ **4th Answer**
17.	$-8 - (-12) = -8 + 12 = 4$
18.	$-10 - (-10) = -10 + 10 = 0$
19.	$5 - 12 + (-5) = -7 - 5 = -12$ **2nd Answer**
20.	$-10 - 11 - (-15) + (-6) = -21 - (-15) + (-6)$ $\qquad\qquad\qquad\qquad\quad = -21 + 15 - 6$ $\qquad\qquad\qquad\qquad\quad = -6 - 6$ $\qquad\qquad\qquad\qquad\quad = -12$ **1st Answer**
21.	$-15 + 45 = 30.$ **It is 30 metres above sea level.**
22.	$50\,000 + 45\,000 = 95\,000$ $95\,000 - 30\,000 = 65\,000$ $65\,000 - 75\,000 = -\,\mathbf{10\,000}$

23.	 **S is –12**
24.	
25.	 As the points are 18+6 = 24 units apart, the midpoint is 12 units from both and it is –6 **3rd Answer**
26.	**–13, –6, –1, 0, 9**
27.	$6 > -5$ as 6 is to the right of -5 on the number line. **4th Answer**
28.	The pattern is decreasing by 8 each time. $17, \quad 9, \quad 1, \quad \boxed{-7} \quad , \quad \boxed{-15}$
29.	$-6 \times 9 = -54$ **1st Answer**
30.	$-8 \times -7 = \mathbf{56}$
31.	$12 \times -8 = \mathbf{-96}$
32.	$-4 \times -5 \times -2 = 20 \times -2$ $\qquad\qquad\qquad = -40$ **2nd Answer**
33.	$(-3)^3 = -3 \times -3 \times -3 = 9 \times -3 = \mathbf{-27}$
34.	$-63 \div (-9) = \mathbf{7}$
35.	$-72 \div 8 = \mathbf{-9}$

36.	$84 \div -3 = \mathbf{-28}$
37.	$\dfrac{-80}{-5} = \mathbf{16}$
38.	$-12 \times 5 \div -10 = -60 \div -10$ $\qquad\qquad\qquad = \mathbf{6}$
39.	$-5 \times 3 + 20 = -15 + 20$ $\qquad\qquad\quad = \mathbf{5}$
40.	$-22 \div (-7 - 4) = -22 \div -11$ $\qquad\qquad\qquad = \mathbf{2}$
41.	$\dfrac{-5 - 5 \times 8}{-9} = \dfrac{-5 - 40}{-9}$ $\qquad\quad = \dfrac{-45}{-9}$ $\qquad = \mathbf{5}$
42.	$\begin{aligned} \text{Score} &= (-3) + 4 \times (-2) + 2 \times (-1) + 0 + 2 \\ &= -3 - 8 - 2 + 2 \\ &= \mathbf{-11} \end{aligned}$