Name _____   Date _____

Midterm exam Review (Unit1,2,3)

Question 1. Fill in the missing numbers.

   a $10 + -8 =$ _____

   b $-9 +$ _____ $= 3$

   c $4 \times -5 =$ _____

   d $-45 \div$ _____ $= -5$

   e $4^3 =$ _____

   f $\sqrt{81} =$ _____

Question 2:

a Find the lowest common multiple (LCM) of 6 and 9.

_____

_____

   b Find the highest common factor (HCF) of 48 and 60.

_____

_____

.

Question 3:

a Show the inequality $x > 6$ on the number line below.

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┬───┬───┬───┬───┬───┬───┬───┬────┬────┬────────
2   3   4   5   6   7   8   9   10   11   12
```

b For the inequality $y < -2$, write down the greatest integer that y could be.

_____

Question 4:

Use the formula $T = mg$ to answer these questions.

Circle the correct answer, **A**, **B** or **C**.

a When $m = 5$ and $g = 9$, the value of T is   **A** 59   **B** 14   **C** 45

b When $m = 9$ and $T = 90$, the value of g is   **A** 810   **B** 10   **C** 99

Question 5:

Simplify these expressions by collecting like terms.

a $4c + 8c + 5d - d$ _____

b $6xy + 2xz + 4yx - 9zx + 15$ _____

Question 6:

Kim expands the bracket $5(2x - 3)$ and gets the answer $10x - 3$.

Is Kim correct? Tick one box.

Yes ☐   No ☐

Explain your answer. _____

Question 7:

Work out:

a 42.5×10^3 _____

_____

b $9\ 600\ 000 \div 10^7$ _____

_____

c 1.5×1000_____

_____

d $32 \div 100$_____

_____

e $94\ 600\ 000 \div 10^8$_____

Question 8:

Here is a list of numbers:

32	81	8	156	4	29	21	3

Using numbers only from this list, write down:

a a multiple of 7 _____

b a factor of 20 _____

c a common factor of 9 and 15 _____

d a number that is divisible by 6 _____

e a square number _____

Question 9:

Circle the correct answer.

    a 14.432 rounded to the nearest tenth is

    A 14.5   **B** 14.4   **C** 14

    b 189.95 rounded to the nearest whole number is

    A 200   **B** 189   **C** 190

Question 10: Put a tick [✔] in the box next to the **expression**.

$3x + 9$ ☐ $3x + 9 = 12$ ☐

Question 11:

Estimate the answers to these questions by rounding the numbers to the nearest integer.

a   −6.15+9.93 _____

b   7.88−−9.13 _____

c   −11.3+−8.81 _____

d   12.19−5.62 _____

Question 12:

This subtraction table shows that 3-6=-3. Copy and complete the table

−	−4	6	
3		−3	1
−3			

.

Question 13: Work out:

a $(-5+2)\times4$ _____

b $(-6+-4)\times3$ _____

c $(1--3)\times-7$ _____

d $(-2--5)\times-10$ _____

Question 14: Work out the missing numbers.

a $3 \times$ ……. $= -24$ b $6 \times$ ……. $= -18$ c $-2 \times$ …… $= -26$ d $-12 \times$ ……… $= -60$

Question 15:

Estimate the answers to these questions by rounding the numbers.

a 423×-2.9 _____

b -32×-28 _____

c -6.1×219 _____

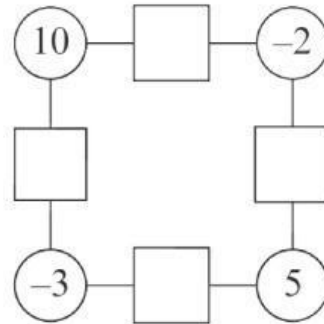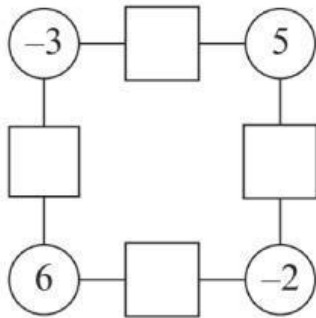d $-612 \div 2.92$ _____

Question 16:

The product of 2 and -9 is -18.

a Find three more pairs of integers with a product of -18.

b Are there more pairs of integers with a product of -18?

_____

How can you be sure? _____

Question 17: In these diagrams, the integer in a square is the product of the integers in the circles next to it.

a   Copy each diagram and fill in the squares.

b   Add the numbers in the squares in each diagram.

Question 18: Find the LCM of 3, 8 and 9:

_____

Question 19: Look at these numbers: 90   92   94   96   98   100

a   Which number is a multiple of 9 and 10? _____

b   Is this number the lowest common multiple?

_____

Question 20:   24×4=96

   a Explain why 96 is a common multiple of 4 and 24.

     _____

   b Is 96 the lowest common multiple of 4 and 24? Give evidence to justify your answer.

     _____

Question 21: Two numbers have a LCM of 45. The two numbers add up to 14. Find the two numbers

a. Find the common factors of 30 and 45.

_____

b. Find the highest common factor of 30 and 45_____

Question 22: The HCF of two numbers is 4. Both numbers are more than 4 and less than 30.

a   Show that the numbers could be 8 and 12.

_____

b   Show that the numbers are not 8 and 16.

_____

c   Find all the other possible values of the two numbers

_____

Question 23:

A. Use the digits 5, 4, 2 and 1 to make a number that is divisible by:

divisible by **5** _____   divisible by **3**   _____

B.   Can you arrange the digits 5, 4, 2 and 1 to make a number that is divisible by:

divisible by **9** _____   divisible by **11**   _____

Question 24: A number is divisible by 15 if it is divisible by 3 and 5.

a   Show that 7905 is divisible by 15. _____

_____

b   The number 208** is divisible by 15. Find the possible values of the two missing digits

_____

Question 25: Work out

√64 = _____   √100 = _____

√9 = _____   √225 = _____

Question 26: Work out

$2^3 + 5^3 =$ _____

$4^3 - 2^3 =$ _____

Question 27: Work out

$\sqrt{\boxed{}} = 25$ $\sqrt{\boxed{}} = 30$

$\sqrt[3]{\boxed{}} = 10$ $\sqrt[3]{\boxed{}} = 15$

Question 28:

Cheng has s strawberries. Write an expression for someone who has:

a   two more strawberries than Cheng _____

b   three times as many strawberries as Cheng _____

c   six fewer strawberries than Cheng_____

d   half as many strawberries as Cheng _____

Question 29: Nesreen thinks of a **number n.** Write an expression for the number

Nesreen gets each time.

a   She multiplies the number by 6. _____

b   She divides the number by 5. _____

c   She multiplies the number by 5, then adds 1. _____

d   She multiplies the number by 7, then subtracts 2. _____

e   She divides the number by 10, then adds 3. _____

f   She multiplies the number by 3, then subtracts the result from

25_____

Question 30:

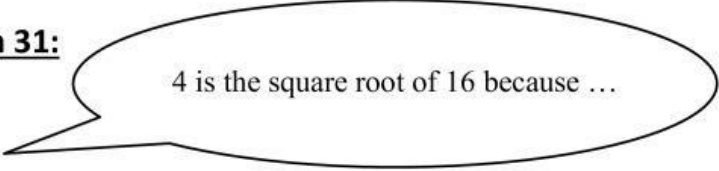Match each description (**a** to **f**) to the correct expression (**i** to **vii**).

	Description		Expression
a	Multiply x by 5 and subtract from 4.	**i**	$4x+5$
b	Multiply x by 4 and add 5.	**ii**	$4x-5$
c	Multiply x by 5 and subtract 4.	**iii**	$4-5x$
d	Multiply x by 5 and add 4.	**iv**	$5-4x$
e	Multiply x by 4 and subtract 5.	**v**	$5x-4$
f	Multiply x by 4 and subtract from 5.	**vi**	$5-5x$
		vii	$5x+4$

.

Question 30: Write an expression for each of these descriptions.
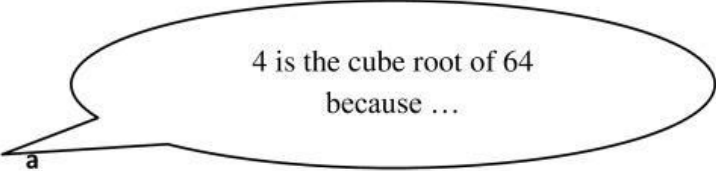
a k more than g b h less than t

c y more than eight times x d three times a multiplied by b

Question 31:

4 is the square root of 16 because …

i   16 is divisible by 4

ii   you find both 4 and 16 in the 4 times table

iii 4 multiplied by itself is 16

4 is the cube root of 64
because …

a

iv   4 times 16 is 64

v   4 times 4 is 16 and multiplying by 4 again gives 64

vi   64 can be divided by 4 but not by 6

Question 32: Write a formula for the number of hours in any number of days, using:

i words   _____

ii letters   _____

Use your formula in part a ii to work out the number of hours **in four days**

_____

Question 33:

a Use the formula $A = bh$ to work out A when:

i b= 4 and h=5

_____

ii b=3 and h=12

_____

b Work out the value of b when A =52 and h=4

_____

Question 34: a   Write a formula for the number of hours for any number of

minutes, in:

i words _____

ii letters _____

b   Use your formula in part a ii to work out the number of hours in 360 minutes

_____

Question 35: Simplify these expressions by collecting like terms.

a 3x+4x+5y _____   b 5z+5z+5a+a _____

c 3a+4b+4a+5b _____   d 4x+5+3x+2 _____

e d+1+d+1 _____   f 5f–3f+ 12g–3g_____

g 45–15+12w–w _____   h 7x+5y–3x+y_____

i 8a+6b–4a–5b _____   j 4w+3x+7y–2w–3x+ 13y _____

Question 36:

Multiply out the brackets.

a. 5(2p+1) _____   b. 7(3q+2) _____

c. 9(2r+ 3) _____   d. 11(3s– 4a+7) _____

e. 2(2t –5) _____   f. 4(5u–1) _____

g. 6(1+ 2v) _____   h. 8(6 +4w–3g) _____

i. 10(6 +7x) _____   j. 5(3–5x) _____

k. 5(4–3x) _____ l. 5(5k–8x – 6h) _____

Question 37:

Zara solves these equations:

2a– 11=–7 _____

4 =b+16 _____

6c+7=25 _____

–12=3d+9_____

Is Zara correct? Show all your working and explain your answer

Question 38:

Use the formula w =2x+ y–3z to work out:

a.w when x =8, y=–3 and z=7

_____

b.x when w=15, y=9 and z=–4

_____

c. y when w=–10, x=6 and z=2

_____

d. z when w=20, x=15 and y= 8

_____

Question 39:

Write down if A, B or C is the correct answer to each of the following.

a For the inequality h > 5, the smallest integer that h could be is:

A 4   **B 5**   **C 6**

b For the inequality j > –7, the smallest integer that j could be is:

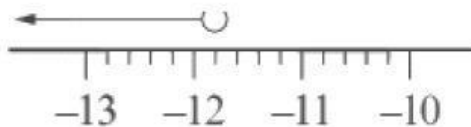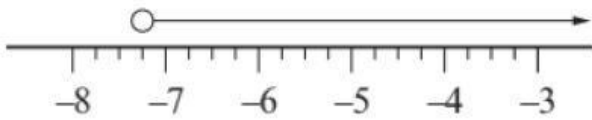**A –8**   **B –7**   **C –6**

Question 40:

Write down the inequality shown on these number lines. Use the letter w.

Question 41:

Copy each number line and show each inequality on the number line.

$y < -1.5$

$y > -4.4$

Question 42:

Write down whether A, B or C is the correct answer.

a 240 000÷105	A 24	B 2.4	C 0.24
b 7020÷106		A 0.00702 B 0.0702	C 0.702
c 8 700 000÷ 108	A 87	B 0.87	C 0.087

Question 43: Work out the following.

a $(3.6 \ 10^4) +15\ 000$ _____

                3

b $4×(2310000÷10^6)$ _____

.

c $(0.005×10^3)^2$ _____

d $(256000000÷10^7)−(0.000049×10^5)$ _____

Question 44:

Round each of these numbers to one decimal place. Choose **A** or **B** is the correct answer.

a	4.671 =	A	4.6	B	4.7
b	9.055 =	A	9.0	B	9.1
c	3.733 =	A	3.7	B	3.8
d	6.915 =	A	6.9	B	7.0
e	0.858 =	A	0.8	B	0.9

Question 45:

Round each of these numbers to four decimal places (4 d.p.).

The first one has been done for you.

a 3.882615=3.8826 (4 d.p.)

b 61.89022 _____

c 143.56228 _____

d 200.006789 _____

e 300.000555 _____

f 18.25252525 _____

Question 46:

Round each of these numbers to two decimal places (2 d.p.). The first one has been done for you.

a 4.983=4.98 (2 d.p.) b 9.037 …………………………… c 24.332 …………………………………

d 128.641 ………………………... e 0.66582 …………………………f 0.03174 …………………………………….

.

Question 47:

Use a calculator to work out the answers to the following. Round each of your

answers to the given degree of accuracy.

a 19÷11 = ……………………………….. (2 d.p.)

b 12.4 ÷ 11 = ……………………………………… (3 d.p)

Question 48:

1   Work out:

    a $6\,000 \div 10^2$ _____   **[1]**

    b $89\,000\,000 \div 10^4$ _____   **[1]**

    c $35 \div 10^3$ _____   **[1]**

Question 49:

    Round each of these numbers to the given degree of accuracy.

    a   16.952 (2 decimal places) _____   **[1]**

    b   449.567891 (4 decimal places) _____   **[1]**

    c   813.02981 (3 decimal places) _____   **[1]**

    d   7.9986 (2 decimal places) _____   **[1]**

Question 50:

      a. Write 10^6 in numbers. _____

      b. Write 10^5 in words. _____

      c. Write 10 000 000 as a power of 10.

      _____