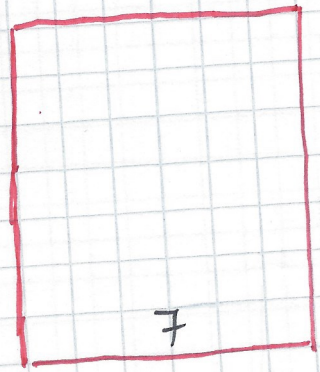
Math 9

Solutions to Unit 2 Quiz

1 - B
2 - C
3 - A
4 - D
5 - B
6 - B
7 - D
8 - D
9 - C
10 - B
11 - A
12 - C
13 - D
14 - C
15 - B
16 - B
17 - 7^3
18 - 7^6 ~~117649~~ $6^7 = 279936$
19 - 3000 000
20 - 90700608
22 - 17896
23 - 3

(1) B



- Side length is 7
- It's a square → power 2

7^2

(2) C

7^5 as Repeated multiplication

$7^5 = 7 \times 7 \times 7 \times 7 \times 7$ (5 times)

(3) A

$(-4) \times (-4) \times (-4) \times (-4) \times (-4) \times (-4)$

Base: (-4)

Repeated → 6 times

so $(-4)^6$

(4) D

$(-5)^7 = -5$ seven times. We know it'll be negative

$= -78125$

(5) B

negative numbers → • negative base with odd exponent
• subtraction sign

i) $(-6)^6$ → negative base, ~~odd~~ exponent → POSITIVE

ii) $-(6)^6$ → the negative carries over
so → NEGATIVE

iii) $-(-6)^6$ positive, but we have a negative sign in front → Negative

so ii and iii

(6) $10^7 = 10000000$ (7 zeroes)

B

(7) 1000 000 as a power:

D • 6 zeroes, then 10^6

(8) -8^0 • Since $8^0 = 1$
• But the - sign must be carried over:

D

then -1

(9) $-(10^0)^9 \rightarrow 9 \times 0 = 0$ so

$-(10^0)$ we know $10^0 = 1$

so

-1

(10) $(5 \times 10^4) + (8 \times 10^1) + (9 \times 10^2) + (6 \times 10^0)$

B • First, rewrite in decreasing order of exponent

$(5 \times 10^4) + (9 \times 10^2) + (8 \times 10^1) + (6 \times \cancel{10^0})^1$

there is no 3

$50000 + 0 + 900 + 80 \quad 6$

50986

(11) i) $(5 \times 10^3) + (6 \times 10^2) + (4 \times 10^1) + (7 \times 10^0) = 5647$

A ii) 5645

iii) $(5 \times 10^3) + (7 \times 10^2) + (8 \times 10^0) = 5708$

iv) 5780

12. $4 - 6^2$ • Bases are different so can't be combined

C

$4 - 36 = -32$

13 $8 + 9 \times 6^2 - 5$ Bedmas is first (exponent)

D

14 $6^5 - 3^3 = 7776 - 27 = 7749$

C

15 $3^2 + \underbrace{4 \times 6}_{2} - 4$ ⇒ Follow BEDMAS

B

$\underbrace{9 + 24}_{33} - 4$

$33 - 4 = 29$

16 i) $(-2) \times (-3) - (-3)^2 - \cancel{(3 \times 2)^0}^{\,1}$

B $(-2) \times (-3) - (9) - 1 = 6 - 9 - 1 = -4$

ii) $(-5 \times 3) + 4^2 - \cancel{(-2)^0}^{\,1} = -15 + 16 - 1 = 0$

iii) $\cancel{(-2)^0}^{\,1} - (-2)^1 - (-2)^2 = 1 - (-2) - 4 = 1 + 2 - 4 = -1$

iv) $(-3)^2 + (-3) - (-2)^2 + (-2)^0 = 9 + (-3) - (4) = 9 - 3 - 4 = 2$

SHORT ANSWERS

17 Since it is a cube → exponent of 3
side length of 7

7^3

(18) $6^7 = 279{,}936$ $7^6 = 117{,}649$

(19) 3×10^6 in Standard Form

$3 \times 1000000 = 3{,}000{,}000$

(20) $(9\times10^7) + (6\times10^2) + (8\times10^0) + (7\times10^5)$

Re-write in order:

- $(9\times10^7) + (7\times10^5) + (6\times10^2) + (8\times10^0)$
- Notice that exponents 6, 4, 3 and 1 are missing → zeroes

$9\times10^7 =$	90000000	+	
10^6	0		
7×10^5	700000	+	907
10^4	0		
10^3	0	+	90700
6×10^2	600		907006
10^1	0		9070060
8×10^0	8		

→ 9070060.08

Problem 5

(22) $(7)^5 + (-5)^4 - (6)^2$

1. $16807 + (+625) - 36$

2. $16807 + (+625) = 17{,}432 - 36$

$= 17{,}396$

(23) $\dfrac{(15)^2 - (6)^2}{(9)^2 - 2(3)^2}$

Numerator $= (15)^2 - (6)^2 = 225 - 36 = 189$ ⇒ $\frac{189}{63} = 3$

Denominator $= (9)^2 - 2(3)^2 = 81 - (2\times9) = 81 - 18 = 63$