

班級：_____ 座號：_____ 姓名：_____

1. 利用分配律，計算下列各式

$$\begin{aligned}(1). & 83 \times (-7) + 17 \times (-7) \\ &= (83+17) \times (-7) \\ &= 100 \times (-7) \\ &= -700\end{aligned}$$

$$\begin{aligned}(2). & 6 \times (-149) - 6 \times (-49) \\ &= 6 \times [(-149) - (-49)] \\ &= 6 \times [(-149) + 49] \\ &= 6 \times (-100) \\ &= -600\end{aligned}$$

$$\begin{aligned}(3). & 201 \times 20 + 199 \times (-20) \\ &= 201 \times 20 + (-199) \times 20 \\ &= [201 + (-199)] \times 20 \\ &= 2 \times 20 = 40\end{aligned}$$

$$\begin{aligned}(4). & 1234 \times 758 + 1234 \times 255 - 1234 \times 13 \\ &= 1234 \times (758 + 255 - 13) \\ &= 1234 \times 1000 \\ &= 1234000\end{aligned}$$

$$\begin{aligned}(5). & (-29) \times (-45) - 55 \times (-29) + 90 \times (-29) \\ &= (-29) \times [(-45) - 55 + 90] \\ &= (-29) \times (-10) \\ &= 290\end{aligned}$$

$$\begin{aligned}(6). & 1002 \times (-329) \\ &= (1000+2) \times (-329) \\ &= 1000 \times (-329) + 2 \times (-329) \\ &= (-329000) + (-658) \\ &= -329658\end{aligned}$$

$$\begin{aligned}(7). & 4234 \times 199 \\ &= 4234 \times (200-1) \\ &= 4234 \times 200 - 4234 \times 1 \\ &= 846800 - 4234 \\ &= 842566\end{aligned}$$

2. 若 $a \times 539 = 8435$ ，求下列各式的值

$$\begin{aligned}(1). & (a+1) \times 539 \\ &= a \times 539 + 1 \times 539 \\ &= 8435 + 539 \\ &= 8974\end{aligned}$$

$$\begin{aligned}(2). & (a-2) \times 539 \\ &= a \times 539 - 2 \times 539 \\ &= 8435 - 1078 \\ &= 7357\end{aligned}$$

$$\begin{aligned}(3). & a \times (-10) \times 539 \\ &= a \times 539 \times (-10) \\ &= 8435 \times (-10) \\ &= -84350\end{aligned}$$

$$\begin{aligned}(4). & a \times \frac{1}{7} \times 539 \\ &= a \times 539 \times \frac{1}{7} \\ &= 8435 \times \frac{1}{7} \\ &= 1205\end{aligned}$$

3. 若 $a = 785 \times 590$ ， $a = 786 \times 589$ ，則 a 、 b 的大小關係為何

$$\begin{aligned}a &= 785 \times (589+1) & \because 785 > 589 \\ &= 785 \times 589 + 785 \times 1 \\ b &= (785+1) \times 589 \\ &= 785 \times 589 + 1 \times 589\end{aligned}$$

$\therefore a > b$

4. 已知 a 、 b 、 c 皆為整數，其中 $a > 0$ 、 $b < 0$ 、 $c < 0$ ，試判別下列各式的結果哪些是正數？哪些是負數？

(1) $a \times c$ (2) $b + c$ (3) $b - a$
(4) $\frac{b \times c}{a}$ (5) $(a - c) \times b$

令 $a=1, b=-1, c=-1$ (5) $[1 - (-1)] \times (-1)$
(1) $1 \times (-1) = -1 < 0$ $= 2 \times (-1)$
(2) $(-1) + (-1) = -2 < 0$ $= -2 < 0$
(3) $(-1) - 1 = -2 < 0$ 正數：(4)
(4) $\frac{(-1) \times (-1)}{1} = 1 > 0$ 負數：(1)(2)(3)(5)

5. a 、 b 均為整數，規定一個新運算符號“ $*$ ”如下：

$$a * b = a \times a - a \times b + 1, \text{ 試求 (1) } 3 * 2 \quad (2) (-3) * 5$$

$$\begin{aligned}(1). & 3 * 2 \\ &= 3 \times 3 - 3 \times 2 + 1 \\ &= 9 - 6 + 1 \\ &= 4 \\ &\underline{\hspace{1cm}} * \\ (2). & (-3) * 5 \\ &= (-3) \times (-3) - (-3) \times 5 + 1 \\ &= 9 - (-15) + 1 \\ &= 25 \\ &\underline{\hspace{1cm}} *\end{aligned}$$

6. 在 $-6, -7, 8, 9, -10$ 等五個數中任取三個數相乘，則

(1) 乘積最大多少？ (2) 乘積最小多少？

(1) $+, +, + \times$ (2) $-, -, -$
or $-, -, + \checkmark$ or $+, +, -$
 $(-10) \times (-7) \times 9$ ① $(-6) \times (-7) \times (-10) = -420$
 $= 630$ $8 \times 9 \times (-10) = -720$
 $\underline{\hspace{1cm}} *$ $\Rightarrow -720 *$

7. 利用指數的形式，簡記下列各數

(1) 13×13 (2) $4 \times 4 \times 4 \times 4 \times 4$ (3) $(-5) \times (-5) \times (-5) \times (-5)$
 $= 13^2$ $= 4^5$ $= (-5)^4$

8. 求下列各數的值

$$\begin{array}{lll} (1) 4^3 & (2) 2^5 & (3) \overbrace{1^{13}}^{13\text{個}} \\ = 4 \times 4 \times 4 & = 2 \times 2 \times 2 \times 2 \times 2 & = \underbrace{1 \times 1 \times \dots \times 1}_{13\text{個}} \\ = 64 & = 32 & = 1 \end{array}$$

$$\begin{array}{lll} (4) (-1)^5 & (5) (-3)^4 & (6) -3^4 \\ = (-1) \times (-1) \times (-1) \times (-1) \times (-1) & = (-3) \times (-3) \times (-3) \times (-3) & = -3 \times 3 \times 3 \times 3 \\ = -1 & = 81 & = -81 \end{array}$$

$$\begin{array}{ll} (7) -(-1)^6 & (8) 0^5 = 0 \times 0 \times 0 \times 0 \times 0 \quad -(-2^4) \\ = -(-1) \times (-1) \times (-1) \times (-1) \times (-1) \times (-1) & = -(-2 \times 2 \times 2 \times 2) \\ = -1 & = 16 \end{array}$$

$$\begin{aligned} (10) (-1)^3 \times (-1)^6 \times (-1)^{31} \\ = (-1) \times 1 \times (-1) \\ = 1 \end{aligned}$$

$$\begin{aligned} (11) 2^3 + 2^4 \\ = 8 + 16 \\ = 24 \end{aligned}$$

$$\begin{aligned} (12) (-2)^3 \times (-3)^2 \div 6^2 \\ = (-8) \times 9 \div 36 \\ = (-72) \div 36 \\ = -2 \end{aligned}$$

$$\begin{aligned} (13) (-14)^2 \times 0^3 \div (-5)^1 \\ = 196 \times 0 \div (-5) \\ = 0 \end{aligned}$$

$$\begin{aligned} (14) 2 \times (-5)^2 - (-4)^2 \\ = 2 \times 25 - 16 \\ = 50 - 16 \\ = 34 \end{aligned}$$

$$\begin{aligned} (15) 3 \times 2^5 - 4 \times 2^3 \\ = 3 \times 32 - 4 \times 8 \\ = 96 - 32 \\ = 64 \end{aligned}$$

$$\begin{aligned} (16) (-2)^3 \times 7 - 9^2 \div (-3)^3 \\ = (-8) \times 7 - 81 \div (-27) \\ = (-56) - (-3) \\ = -53 \end{aligned}$$

$$\begin{aligned} (17) (-2)^5 \times 3 - (-4)^2 \times (-2)^3 \\ = (-32) \times 3 - 16 \times (-8) \\ = (-96) - (-128) \\ = (-96) + 128 \\ = 32 \end{aligned}$$

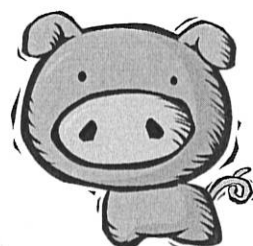
$$\begin{aligned} (18) (-6) + [-7^2 + (-7)^3] \div (-2^3) \\ = (-6) + [-49 + (-343)] \div (-8) \\ = (-6) + (-392) \div (-8) \\ = (-6) + 49 \\ = 43 \end{aligned}$$

$$\begin{aligned} (19) (-5) - [(-243) \div (-3)^2 + 2] \\ = (-5) - [(-243) \div 9 + 2] \\ = (-5) - [(-27) + 2] \\ = (-5) - (-25) \\ = 20 \end{aligned}$$

$$\begin{aligned} (20) 10^2 - (-5)^2 \times [(-2) + (-3) \times (-4)] + 50 \\ = 100 - 25 \times [(-2) + 12] + 50 \\ = 100 - 25 \times 10 + 50 \\ = 100 - 250 + 50 \\ = -100 \end{aligned}$$

$$\begin{aligned} (21) 15 - 3 \times [|0^5 - (-3)^2| - 1^4 \times 2^3] - (-4)^2 \\ = 15 - 3 \times [|0 - 9| - 1 \times 8] - 16 \\ = 15 - 3 \times [9 - 8] - 16 \\ = 15 - 3 \times [9 - 8] - 16 \\ = 15 - 3 \times 1 - 16 \\ = 15 - 3 - 16 = -4 \end{aligned}$$

$$\begin{aligned} (22) (-1)^{51} + (-1)^{52} + (-1)^{53} + \dots + (-1)^{100} \\ = (-1) + 1 + (-1) + 1 + \dots + (-1) + 1 \\ = 0 \end{aligned}$$



祝大家中秋節快樂，吃完烤肉也別忘了複習數學喔~~