

# OPERATIONS

ADD  $5 + 3 = 8$

$$(-5) + (-3) = -8$$

$$(-5) + 3 = -2$$

$$\begin{array}{cc} \downarrow & \downarrow \\ |*5|=5 & |3|=3 \end{array}$$

$$5 + (-3) = 2$$

SUB  $5 - 3 = 2$

$$(-5) - (-3) = (-5) + 3 = -2$$

$$(-100) - (-45) = (-100) + 45 = -55$$

$$5 - (-3) = 5 + 3 = 8$$

$$(-5) - 3 = (-5) + (-3) = -8$$

$$(-10) - 7 = (-10) + (-7) = -17$$

Ex 3  $-8 - 30 - (-12) - 7 - (-14)$

$$\begin{array}{ccccccc} -8 & -30 & +12 & -7 & +14 & & \\ \hline & -38 & & & & & \end{array}$$

$$\begin{array}{ccccccc} -38 & +12 & -7 & +14 & & & \\ \hline & -26 & & & & & \end{array}$$

$$\begin{array}{r} -26 \quad -7 + 14 \\ \hline -33 \quad + 14 \\ \hline -19 \end{array}$$

P3

$$4(-(-3)) - 12 - (-7) - 20$$

$$\underline{4 + 3} - 12 + 7 - 20$$

$$7 - 12 + 7 - 20$$

$$\underline{-5 + 7} - 20$$

$$2 - 20$$

$$\underline{\quad\quad\quad} - 18$$

RULE

$$\begin{array}{l} 5 \cdot 3 = 15 \\ (-5) \cdot (-3) = 15 \end{array} \left. \vphantom{\begin{array}{l} 5 \cdot 3 \\ (-5) \cdot (-3) \end{array}} \right\} \begin{array}{l} \text{SAME SIGN} \\ \rightarrow \text{POSITIVE} \end{array}$$

$$\begin{array}{l} 5 \cdot (-3) = -15 \\ (-5) \cdot 3 = -15 \end{array} \left. \vphantom{\begin{array}{l} 5 \cdot (-3) \\ (-5) \cdot 3 \end{array}} \right\} \begin{array}{l} \text{DIFFERENT SIGNS} \\ \rightarrow \text{NEGATIVE} \end{array}$$

$$5 \cdot 0 = 0 \quad (\text{ALWAYS ZERO})$$

$$5 \cdot 1 = 5 \quad (\text{NUMBER ITSELF})$$

$$5 \cdot (-1) = -5 \quad (\text{OPPOSITE OF NUMBER})$$

Ex 4

$$\begin{aligned} & 2 \cdot (-3) \cdot (-5) \cdot (-7) \\ & \quad \underbrace{(-6) \cdot (-5) \cdot (-7)} \\ & \quad \quad \underbrace{30 \cdot (-7)} \\ & \quad \quad \quad -210 \end{aligned}$$

DIVISION

$$15 \div 5 = \frac{15}{5} = 3$$

$$(-15) \div (-5) = \frac{-15}{-5} = 3$$

$$(-15) \div 5 = \frac{-15}{5} = -3$$

$$15 \div (-5) = \frac{15}{-5} = -3$$

$$0 \div 15 = \frac{0}{15} = 0$$

$$0 \div 0 = \frac{0}{0} \quad (? \text{ CALCULUS})$$

$$15 \div 0 = \frac{15}{0} \quad (\text{UNDEFINED / UND})$$

$$15 \div 1 = \frac{15}{1} = 15$$

$$15 \div (-1) = \frac{15}{-1} = -15$$

Ex 6

$$-8^{\circ}, 2^{\circ}, 0^{\circ}, -7^{\circ}, 1^{\circ}, 6^{\circ}, -1^{\circ}$$

$$\begin{aligned} \text{ADD: } & (-8) + 2 + 0 + (-7) + 1 + 6 + (-1) \\ & \underline{(-6)} + 0 + (-7) + 1 + 6 + (-1) \\ & \underline{(-6)} + (-7) + 1 + 6 + (-1) \\ & \underline{(-13)} + 1 + 6 + (-1) \\ & \underline{(-12)} + 6 + (-1) \\ & \underline{(-6)} + (-1) \\ & \underline{(-7)} \end{aligned}$$

$$\text{DIVIDE: } \frac{(-7)}{7} = -1$$

$$\left[ \begin{array}{l} (-8) + 2 + 0 + (-7) + 1 + 6 + (-1) \\ (-16) + 9 = -7 \end{array} \right]$$

P 6

$$\begin{aligned} & -5^{\circ}, -6^{\circ}, 3^{\circ}, 0^{\circ}, -4^{\circ}, -7^{\circ}, -2^{\circ} \\ & (-5) + (-6) + 3 + 0 + (-4) + (-7) + (-2) \\ & (-24) + 3 = -21 \end{aligned}$$

$$\frac{-21}{7} = -3$$