

1) Evaluate each of the following.

a)  $10 - 5 + 4$

b)  $6 + 2 \times 4$

c)  $6 \div 3 + 3 \times 4$

d)  $12 - (6 + 2)$

e)  $20 - 4^2 + 5(3)$

f)  $(2 + 3)^2$

g)  $(4 + 6 \div 2)^3$

h)  $3(3^2 - 2 \times 4)$

i)  $10 + (9 - 7)^4$

j)  $(3 + 2)^2 - (5 - 3)^3$

k)  $3(20 + 8 \div 4 - 2) - 6^2$

l)  $(5 - 2^2 + 2)^3 \div 3$

m)  $10^2 + 2(6 - 3)^2$

n)  $2(3 + 1)^2 - 4(3 - 10 \div 5)^4$

o)  $[5 + 3(8 - 2 \times 3)]^2$

p)  $2[(15 - 3^2) + (30 - 25)^2]$

2) Evaluate  $((2^2)^2)^2$ .

3) **Scientific Notation** is often used to express numbers very large numbers. For example, the number 3 45 000 000 000, given in standard notation, can be written as  $3.45 \times 10^{11}$  in scientific notation. Express each of the following numbers in standard notation.

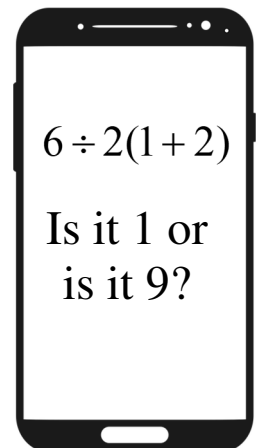
a)  $2.6 \times 10^7$

b)  $5.75 \times 10^{12}$

c)  $2.185 \times 10^{10}$

4) Questions like the one shown on the right often appear on social media, along with many comments supporting each of the two options.

- a) Show that the given expression is equal to 9 if it is evaluated using the standard order of operations (BEDMAS).
- b) Explain how one might arrive at a value of 1 for this expression.
- c) Suggest a way to rewrite the given expression such that using the standard order of operations results in a value of 1.



## ANSWERS

1) a) 9   b) 14   c) 14   d) 4   e) 19   f) 25   g) 343   h) 3  
i) 26   j) 17   k) 24   l) 9   m) 82   n) 28   o) 121   p) 62

2) 256

3) a) 26 000 000   b) 5 750 000 000 000   c) 21 850 000 000

4) a) After evaluating the contents of the brackets, the division is completed before the multiplication, as the division appears first from left to right.

$$6 \div 2(1+2)$$

$$= 6 \div 2(3)$$

$$= 3(3)$$

$$= 9$$

b) If the multiplication is completed before the division, the result will be 1.

$$6 \div 2(1+2)$$

$$= 6 \div 2(3)$$

$$= 6 \div 6$$

$$= 1$$

c) Answers may vary. Two possibilities are  $(6 \div 2)(1+2)$  and  $\frac{6}{2(2+1)}$ .

*Note: It is quite possible that the intended interpretation of the given expression is  $\frac{6}{2(2+1)}$ , but it could not be represented using such notation due to early*

*typesetting/printing limitations. In practice, the context of the problem would most likely indicate how such an expression should be interpreted.*