

Maths Quiz: Solutions (PG 1)

1. Complete this pattern

-48, -192, -768

Ask yourself +, -, x or ÷

Just use your calculator

$$-192 \div -48 =$$

not the

$$-768 \div -192 =$$

Same

try dividing them

$$-192 \div -48 = 4$$

$$-768 \div -192 = 4$$

So we are getting the next term

by multiplying by 4

$$\text{So } -768 \times 4 = -3072$$

2: Find 120th term in

5, 8, 11, ...

If we know the difference

(8-5=3) which is 3

Because we start with

5 as the first term we need

another 119 terms to get to 120

all these we get by adding 3

$$\text{So } T_{120} = 5 + 3 \times 119$$

$$= 362$$

3. If $d = 6t^2$ find d if $t = -3$

a popular question because it is

checking you know $(-3)^2 = -3 \times -3 = +9$

$$\text{So } d = 6t^2 = 6 \times (-3)^2$$

$$= 6 \times 9 = 54$$

4) Simplify

this means to use the rules to add/sub/mult or divide in algebra

$$\text{a) } 5b(-16) + 11b(-10)$$

look at like terms

$$\rightarrow 5b + 11b = 16b$$

If nothing in front of number it's a +

$$-16 - 10 = -26$$

$$\therefore \text{ answer} = 16b - 26$$

$$\text{b) } 5m^2n \times -4mn$$

remember if

$$5m^2n^1 \times -4m^1n^1$$

no power written it means a one.

$$= -20m^3n^2$$

multiply 5×-4

$$m^2 \times m^1$$

$$n^1 \times n^1$$

$$\text{c) } (5xy^3)^2$$

Square every term

in ()

$$= 5^2 x^2 (y^3)^2$$

remember $(x^n)^m$

$$= 25x^2y^4$$

$$= x^{m \times n}$$

power to a power

multiply powers.

$$\text{(d) } 6p^2q^4 \div 42p^9q$$

always write as a fraction

its like

$$= \frac{6p^2q^4}{42p^9q}$$

$$\frac{6}{42}$$

$$\frac{p^2}{p^9}$$

$$\frac{q^4}{q}$$

$$= \frac{q^3}{7p^7}$$

$$\frac{1}{7}$$

$$\frac{1}{p^7}$$

$$\frac{q^3}{1}$$

Question 5

a) $3m - 2 = 7$

- move numbers separate from variable (m) that is the -2
- The opposite of -2 is $+2$ so $+2$ to each side
- Simplify $-2+2=0$ $7+2=9$
- You now have $3 \times m = 9$ need to move 3 opposite of $\times 3$ is $\div 3$

$$3m - 2 = 7$$

$$3m = 9$$

$$\frac{3m}{3} = \frac{9}{3}$$

$$m = 3$$

b) $6 - 8a = 5a - 20$

or $5a - 20 = 6 - 8a$

- I swapped sides because its easier for me
- Now we want all a's on left hand side and numbers on right
- Circle what you want to move
- add 20 to both sides
- add $8a$ to both sides
- divide both sides by 13

$$5a - 20 = 6 - 8a$$

$$5a + 8a = 26 - 8a + 8a$$

$$13a = 26$$

$$\frac{13a}{13} = \frac{26}{13}$$

$$a = 2$$

(c) $4 - 2m = 8$

- Remember move the 4 first!!! by subtracting 4 to both sides
- move 5 by $\times 5$ because $\cancel{5} \times -\frac{2m}{\cancel{5}}$ 5's cancel out
- divide both sides by -2 be careful of the negative

$$4 - 2m = 8$$

$$4 - 2m = 8$$

$$5 \times -\frac{2m}{5} = 4 \times 5$$

$$-2m = 20$$

$$\frac{-2m}{-2} = \frac{20}{-2}$$

$$m = -10$$