Quiz (2) Full Solutions

1) Write the next term in the sequence $-45, -36, -27, \_\_$

The difference between the terms is 9

so $-27 + 9 = -18$

Ans is -18

2) A sequence is given by the rule $T_n = (-6)^n - 13$

find the 5^{th} term.

T_n is a general expression so to find the 1st term put in $n=1$ or 5^{th} term $n=5$ and then work it out (evaluate)

$T_5 = (-6)^5 - 13$

using calculator

$T_5 = -7789$

3. Simplify $12m - 20 - 2m + 4$

$+12m - 2m = +10m$

$-20 + 4 = -16$ ← careful with negatives

Ans $10m - 16$

4. $7g^3h^2 \times 4g^1h^1$ ← don't forget 1's

$= 28g^4h^3$ ← add powers

5. $(3m^5n^4)$

mean $(3)^4(m^5)^4(n^4)^4$

Just use calc or $3\times3\times3\times3$

power to another power is multiplication

$81m^{5\times4}n^{4\times4} = 81m^{20}n^{16}$

6. $36x^4y^2 \div 9xy^5$

write as a fraction first

$\frac{36x^4y^2}{9xy^5}$ ← cancel out

$= \frac{4x^3}{y^3}$ ← what is denominator stays there

7. $3m(2m+5) + 3m^2 - 2m + 5$

do this first

$3m(2m+5)$

$= 3m \times 2m + 3m \times 5$

$= 6m^2 + 15m$

now put it all together

$6m^2 + 15m + 3m^2 - 2m + 5$

$+6m^2 + 3m^2 = 9m^2$

$+15m - 2m = +13m$

$\therefore$ ans $= 9m^2 + 13m + 5$

8. Solve equations

a) $4m - 17 = 47$ (+17 +17)

$\frac{4m}{4} = \frac{64}{4}$ ÷ both sides by 4

$m = 16$

b) $\frac{5x}{5} \times \frac{2x}{} = 25 \times 5$ move 5 first

$\frac{2x}{2} = \frac{125}{2}$ ÷ by 2

$x = \frac{125}{2}$

or $62\frac{1}{2}$

(c) $8 - \frac{p}{5} = -5$ may be easier to move 8 first

$-\frac{p}{5} = -13$ notice the 2 negatives can cancel out

multiply both sides by 5

$p = 65$

(d) $7(y-3) + 12 = 4y$

$7(y-3) = 7xy + 7x-3$

$= 7y - 21$

So

$7y - 21 + 12 = 4y$ simplify $-21+12$

$7y - 9 = 4y + 0$ you know you need to add 9 to both sides but there is no number to add 9 to so put in a zero (0)

$-4y \quad -4y$

$7y = 4y + 9$

$3y = 9$

$y = 3$

(9) if $r = 0.2$ & $V = ?$

$V = \frac{4}{3}\pi r^3$

$= \frac{4}{3} \times \pi \times (0.2)^3$

$= 0.033510$ ← always put more than required dec. places

$= 0.03$ (2 dp) then give rounded answer.