1. $(3x+2)(2x-1)=0$
   x = -2/3 or x = ½
   The answer is ½.

2. 3x – 4 = 2x + 1 or 3x – 4 = -(2x + 1)
   x = 5 or x = 3/5
   AND
   $(x-4)(x+1)>0$
   x < -1 or x > 4
   The answer is 5.

3. $\frac{4-1}{x+1}=\frac{3}{4}\rightarrow x=3$
   The answer is 3.

4. $x=3-\frac{1}{3}(3--3)=1$
   The answer is 1.

5. $x=\frac{-(-18)}{2(3)}=3$
   $f(3)=-22$
   The answer is –22.

6. $m=\frac{4--2}{3--6}=\frac{2}{3}$
   $y-4=\frac{2}{3}(x-3)$
   $y-4=\frac{2}{3}(0-3)\rightarrow y=2$
   $0-4=\frac{2}{3}(x-3)\rightarrow x=-3$
   $-3\times 2=-6$
   The answer is –6.

7. A = {2,3,5,7,11,13,17,19}
   B = {1,3,5,7,9,11,13,15,17,19}
   $A\cap B=\{3,5,7,13,15,17,19\}$
   The answer is 7.

8. $(f\circ g)(3)=f(2)=-2$
   $g^{-1}(1)=\frac{5}{2}$
   $\frac{-2}{\frac{5}{2}}=-\frac{4}{5}$
   The answer is –4/5.

9. $\sqrt{x-1}=x-3$
   $x-1=x^2-6x+9$
   $x^2-7x+10=0$
   $(x-2)(x-5)=0$
   x = 2 or x = 5
   The answer is 5.

10. $121_{FOUR}=1\times 4^2+2\times 4^1+1\times 4^0=25$
    $25=18+6+1=2\times 3^2+2\times 3^1+1\times 3^0$
    The answer is 221_{THREE}.

11. $\frac{(1.2\times 10^5)(3\times 10^{-4})}{1.8\times 10^{-3}}=\frac{3.6\times 10^1}{1.8\times 10^{-3}}=2\times 10^4$
    The answer is 20,000.

12. $9^c3=\frac{9!}{(9-3)!3!}=\frac{9\bullet 8\bullet 7\bullet 6!}{6!3!}=\frac{9\bullet 8\bullet 7}{3\bullet 2\bullet 1}=3\bullet 4\bullet 7$
    The answer is 84.

13. $8^p3=\frac{8!}{(8-3)!}=\frac{8\bullet 7\bullet 6\bullet 5!}{5!}=8\bullet 7\bullet 6$
    The answer is 336.

14. $\binom{8}{6}\left(3x^2\right)^2\left(-y\right)^6=28\left(9x^4\right)\left(y^6\right)$
    The answer is 252.

15. $i^{102}\left|3-4i\right|=i^{100}\bullet i^2\sqrt{3^2+(-4)^2}=1\bullet -1\bullet 5$
    The answer is –5.

16. $f(x)=x^4-2x^3-x^2+2x$
    $f(x)=x(x^3-2x^2-x+2)$
    $f(x)=x[(x^3-2x^2)-(x-2)]$
    $f(x)=x[x^2(x-2)-1(x-2)]$
    $f(x)=x(x-2)(x^2-1)$
    $f(x)=x(x-2)(x-1)(x+1)$
    x = 0, 2, 1, -1
    The answer is –1.

17. $\begin{bmatrix} 2 & 3 \\ 3 & -2 \end{bmatrix}\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -4 \\ 7 \end{bmatrix}$

$\begin{cases} 2x+3y=-4 \\ 3x-2y=7 \end{cases} \rightarrow x=1, y=-2$

$x-2y=1-2(-2)$

The answer is 5.

18. $\begin{cases} x^2+x+y^2-3y+2=0 \\ x+1+\dfrac{y^2-y}{x}=0 \end{cases}$

$x^2+y^2+x-3y=-2$

$-x^2-y^2-x+y=0$

$y=1$

The answer is 1.

19. $3^{-2x}=4$

$3^{2x}=\dfrac{1}{4}$

$3^x=\pm\dfrac{1}{2}$

$9^{3x}=(3^2)^{3x}=3^{6x}=(3^x)^6=\left(\pm\dfrac{1}{2}\right)^6$

The answer is $\dfrac{1}{64}$.

20. $\log_2 2 \bullet \log_2 4 \bullet \log_2 8 \bullet ... \bullet \log_2 64$

$1 \bullet 2 \bullet 3 \bullet ... \bullet 6$

The answer is 720.

21. $\dfrac{3}{4}x^2-\dfrac{1}{4}x-\dfrac{1}{2}=0$

$3x^2-x-2=0$

$(3x+2)(x-1)=0$

x = -2/3 or x = 1

$-\frac{2}{3} \bullet 1$

The answer is $-\frac{2}{3}$.

22. $\left(\dfrac{27}{8}\right)^{2/3}\left(\dfrac{16}{9}\right)^{-3/2}$

$\left(\dfrac{3^3}{2^3}\right)^{2/3}\left(\dfrac{3^2}{4^2}\right)^{-3/2}$

$\dfrac{9}{4}\bullet\dfrac{27}{64}=\dfrac{243}{256}$

The answer is $\dfrac{243}{256}$.

23. $.5\times.4+.5\times.7=.2+.35$

The answer is .55 or 11/20.

24. $a_{30}=-14+(30-1)(5)$

The answer is 131.

25. $\sum_{n=1}^{\infty} 2\left(\frac{2}{3}\right)^{n-1} = 2+\frac{4}{3}+\frac{8}{9}+...$

$\dfrac{2}{1-\frac{2}{3}}$

The answer is 6.