

1) $(2y^2 - 4y + 6) - (7y - 1)$
 $-7y + 1$
 $-7y + 1$

$$\begin{array}{r} 2y^2 - 4y + 6 \\ -7y + 1 \\ \hline \end{array}$$

$$\boxed{2y^2 - 11y + 7}$$

Convert to standard notation:

2) 3.109×10^7

$$3.1090000$$

$$\boxed{31,090,000}$$

3) $(x + 3)(5x^2 + 4x - 6)$

$$5x^3 + 4x^2 - 6x$$

$$15x^2 + 12x - 18$$

$$\boxed{5x^3 + 19x^2 + 6x - 18}$$

4) $4(-8)^0 + (12)^0$

$$4 \cdot 1 + 1$$

$$4 + 1$$

$$\boxed{5}$$

5) $5x^{-2}$

$$\boxed{\frac{5}{x^2}}$$

6) $\left(\frac{2u^{-5}v}{u^{-8}v^7w^{-5}}\right)^3$

$$\left(\frac{2u^3v^4w^5}{u^5v^7}\right)^3$$

$$\left(\frac{2u^3w^5}{v^6}\right)^3 = \frac{8u^9w^{15}}{v^{18}}$$

7) $(4x + 9)(3x + 2)$

$$12x^2 + 8x + 27x + 18$$

$$\boxed{12x^2 + 35x + 18}$$

8) $(-5x^4y^0)^{-2}$

$$\frac{1}{(-5x^4)^2} = \frac{1}{25x^8}$$

9) $(3x^4y^{-3})(-7x^9y^{-2})$

$$-21x^{13}y^{-5} = \frac{-21x^{13}}{y^5}$$

10) $\frac{18r^8 - 15r^5 + 12r^3}{3r^3}$

$$\frac{6r^5}{3r^3} - \frac{5r^2}{3r^3} + \frac{4r^3}{3r^3}$$

$$\boxed{6r^5 - 5r^2 + 4}$$

11) $(r^7t^3)(-4r^3t^5)^2$
 $(r^7t^3)16r^6t^{10}$

$$\boxed{16r^{13}t^{13}}$$

12) $\frac{(q^2r^7)^3}{q^{15}r^{10}}$

$$\frac{q^6r^{21}}{q^{15}r^{10}} = \frac{r^{11}}{q^9}$$

13) $(7m - 3)^2$

$$(7m - 3)(7m - 3)$$

$$49m^2 - 21m - 21m + 9$$

$$\boxed{49m^2 - 42m + 9}$$

14) $\left(\frac{5x^{-7}y^0}{x^{-3}y}\right)^2$

$$\left(\frac{5x^4}{xy}\right)^2$$

$$\left(\frac{5x^4}{x^4y}\right)^2 = \frac{25}{x^8y^2}$$

15) $\frac{16y^7 + 20y^5 - 8y^2 + y}{8y}$

$$\frac{2y^6}{8y} + \frac{5y^4}{28y} - \frac{8y^2}{8y} + \frac{y}{8y}$$

$$\boxed{2y^6 + \frac{5y^4}{2} - y + \frac{1}{8}}$$

16) $(8n^3 - 5n + 1) - (-5n^2 + 7n - 9)$
 $+ 5n^2 - 7n + 9$

$$\begin{array}{r} 8n^3 - 5n + 1 \\ 5n^2 - 7n + 9 \\ \hline \end{array}$$

$$8n^3 + 5n^2 - 12n + 10$$

Convert to scientific notation:

17) 0.000000352

$$3.52 \times 10^{-7}$$

18) $(3x - 5)(x^2 + 2x - 8)$

$$\begin{array}{r} 3x^3 + 6x^2 - 24x \\ - 5x^2 - 10x + 40 \\ \hline \end{array}$$

$$3x^3 + x^2 - 34x + 40$$

19) $3a^5b^2(-8a^4b^7)$

$$-24a^9b^9$$

20) $(3k^7m^3)^{-3}$

$$\frac{1}{(3k^7m^3)^3} = \frac{1}{27k^{21}m^9}$$

21) $\left(\frac{x^{-2}y^{-5}}{x^{-5}y^{-8}}\right)^2$

$$\left(\frac{x^3y^3}{x^2y^5}\right)^2$$

$$(x^3y^3)^2 = x^6y^6$$

22) $(3r + 7)(5r - 1)$

$$15r^2 - 3r + 35r - 7$$

$$15r^2 + 32r - 7$$

23) $(3x^7y^3)^{-2}$

$$\frac{1}{(3x^7y^3)^2} = \frac{1}{9x^{14}y^6}$$

24) $(2x^{-5}y^2)(-7x^{-8}y^8)$

$$-14x^{-13}y^{10} = \frac{-14y^{10}}{x^{13}}$$

25) $\frac{35x^6 - 15x^4 - 20x^2}{5x}$

$$\frac{7x^5}{5x} - \frac{3x^3}{5x} - \frac{4x}{5x}$$

$$7x^5 - 3x^3 - 4x$$

26) $(5r^2t^2)(3r^{10}t^3)^2$

$$(5r^2t^2)9r^{20}t^6$$

$$45r^{22}t^8$$

27) $\frac{(q^5r^7)^4}{q^{23}r^{11}}$

$$\frac{q^{20}r^{28}}{q^{23}r^{11}} = \frac{r^{17}}{q^3}$$

28) $(3n - 5)^2$

$$(3n - 5)(3n - 5)$$

$$9n^2 - 15n - 15n + 25$$

$$9n^2 - 30n + 25$$

29) $(4x^2y^5)^{-2}$

$$\frac{1}{(4x^2y^5)^2} = \frac{1}{16x^4y^{10}}$$

30) $\frac{21y^8 + 28y^7 - 7y^2}{7y^2}$

$$\frac{3y^6}{7y^2} + \frac{4y^5}{7y^2} - \frac{1y^2}{7y^2}$$

$$3y^6 + 4y^5 - 1$$