Problem 1 *Simplify the following type one radical. Notice that the root symbol is already supplied for you so you only need to supply the inside and outside functions (no need to expand them!)*

$$\sqrt[9]{(9\,x-2)^{21}(7\,x+6)^{3}(3\,x+2)^{36}(2\,x-5)^{21}} = \left(\boxed{(9\,x-2)^{2}(3\,x+2)^{4}(2\,x-5)^{2}}\right)\sqrt[9]{\boxed{(9\,x-2)^{3}(7\,x+6)^{3}(2\,x-5}}$$

Feedback(*`attempt`*): *Remember you want to break up the powers of each factor into the part that the root's power goes into "evenly" versus the remainder. So, for example, $(9\,x-2)^{21}$ can be written as $(9\,x-2)^{21} = (9\,x-2)^{18}\cdot(9\,x-2)^{3}$. Then you can pull out the $(9\,x-2)^{18}$ part from the radical, leaving the $(9\,x-2)^{3}$ part behind in the simplified version's radicand.*

Problem 2 *Simplify the following type one radical. Notice that the root symbol is already supplied for you so you only need to supply the inside and outside functions (no need to expand them!)*

$$\sqrt[3]{(9\,x+2)^{8}(5\,x+2)^{3}(4\,x+9)^{11}(x+3)} = \left(\boxed{(9\,x+2)^{2}(5\,x+2)(4\,x+9)^{3}}\right)\sqrt[3]{\boxed{(9\,x+2)^{2}(4\,x+9)^{2}(x+3)}}$$

Feedback(*`attempt`*): *Remember you want to break up the powers of each factor into the part that the root's power goes into "evenly" versus the remainder. So, for example, $(9\,x+2)^{8}$ can be written as $(9\,x+2)^{8} = (9\,x+2)^{6}\cdot(9\,x+2)^{2}$. Then you can pull out the $(9\,x+2)^{6}$ part from the radical, leaving the $(9\,x+2)^{2}$ part behind in the simplified version's radicand.*

Problem 3 *Simplify the following type one radical. Notice that the root symbol is already supplied for you so you only need to supply the inside and outside functions (no need to expand them!)*

$$\sqrt[3]{(9\,x+8)(7\,x+2)^{11}(3\,x+1)^{14}(2\,x-5)} = \left(\boxed{(7\,x+2)^{3}(3\,x+1)^{4}}\right)\sqrt[3]{\boxed{(9\,x+8)(7\,x+2)^{2}(3\,x+1)^{2}(2\,x-5)}}$$

Feedback(*`attempt`*): *Remember you want to break up the powers of each factor into the part that the root's power goes into "evenly" versus the remainder. So, for example, $2\,x-5$ can be written as $2\,x-5 = 1\cdot(2\,x-5)^{1}$. Then you can pull out the 1 part from the radical, leaving the $(2\,x-5)^{1}$ part behind in the simplified version's radicand.*

Problem 4 *Simplify the following type one radical. Notice that the root symbol is already supplied for you so you only need to supply the inside and outside functions (no need to expand them!)*

$$\sqrt[9]{(9\,x+10)^{35}(8\,x-5)^{52}(7\,x-4)^{51}(5\,x+8)^{26}} = \left(\boxed{(9\,x+10)^{3}(8\,x-5)^{5}(7\,x-4)^{5}(5\,x+8)^{2}}\right)\sqrt[9]{\boxed{(9\,x+10)^{8}(8}}$$

Feedback(*`attempt`*): *Remember you want to break up the powers of each factor into the part that the root's power goes into "evenly" versus the remainder. So, for example, $(7\,x-4)^{51}$ can be written as $(7\,x-4)^{51}=(7\,x-4)^{45}\cdot(7\,x-4)^{6}$. Then you can pull out the $(7\,x-4)^{45}$ part from the radical, leaving the $(7\,x-4)^{6}$ part behind in the simplified version's radicand.*

Problem 5 *Simplify the following type one radical. Notice that the root symbol is already supplied for you so you only need to supply the inside and outside functions (no need to expand them!)*

$$\sqrt[7]{(9\,x-8)^{40}(8\,x-3)^{23}(4\,x-9)^{11}(2\,x+3)^{6}} = \left(\boxed{(9\,x-8)^{5}(8\,x-3)^{3}(4\,x-9)}\right)\sqrt[7]{\boxed{(9\,x-8)^{5}(8\,x-3)^{2}(4\,x-9}}$$

Feedback(*`attempt`*): *Remember you want to break up the powers of each factor into the part that the root's power goes into "evenly" versus the remainder. So, for example, $(4\,x-9)^{11}$ can be written as $(4\,x-9)^{11}=(4\,x-9)^{7}\cdot(4\,x-9)^{4}$. Then you can pull out the $(4\,x-9)^{7}$ part from the radical, leaving the $(4\,x-9)^{4}$ part behind in the simplified version's radicand.*