Y13 negative and fractional powers #1

Write without using negatives or fractional exponents:

1. x^{-2}

2. $x^{\frac{-1}{2}}$

3. $x^{\frac{3}{2}}$

4. $x^{\frac{-2}{3}}$

Write in the form ax^n where a and n can be fractional and/or negative:

5. $\frac{2}{\sqrt[3]{x}}$

6. $\sqrt{4x^5}$

7. $\frac{5}{\sqrt[4]{x}}$

8. $\left(2\sqrt{x}\right)^3$

Simplify and write in the form x^n:

9. $\frac{\frac{1}{x^2}}{\frac{1}{x^5}}$

10. $\frac{\sqrt{x}}{x^3}$

11. $\frac{x}{\sqrt[3]{x}}$

12. $\frac{\sqrt[2]{x}}{\sqrt[3]{x}}$

Of the four terms which, if any, is different from the others?

13. x^{-3} $\quad \frac{1}{x^3}$ $\quad (\frac{1}{\sqrt[3]{x}})^9$ $\quad \frac{\frac{1}{\sqrt{x^7}}}{\frac{1}{\sqrt{x}}}$

14. $x^2\sqrt{x}$ $\quad x^{2.5}$ $\quad \frac{x^3}{\sqrt{x}}$ $\quad \left(\sqrt[5]{x}\right)^2$

15. $(x^3)^2$ $\quad \left(\sqrt{x}\right)^{12}$ $\quad \frac{1}{x^{-6}}$ $\quad \left(\sqrt[3]{x}\right)^{18}$

16. $\frac{x}{\sqrt[3]{x}}$ $\quad \sqrt[3]{x^2}$ $\quad x^{1.5}$ $\quad \frac{\frac{1}{\sqrt[3]{x}}}{\frac{1}{x}}$

Answers: Y13 negative and fractional powers #1

Write without using negatives or fractional exponents:

1. x^{-2} = $\frac{1}{x^2}$

2. $x^{\frac{-1}{2}}$ = $\frac{1}{\sqrt{x}}$

3. $x^{\frac{3}{2}}$ = $\sqrt{x^3}$ or, less usually, $\left(\sqrt{x}\right)^3$

4. $x^{\frac{-2}{3}}$ = $\frac{1}{\sqrt[3]{x^2}}$ or, less usually, $\frac{1}{\left(\sqrt[3]{x}\right)^2}$

Write in the form ax^n where a and n can be fractional and/or negative:

5. $\frac{2}{\sqrt[3]{x}}$ = $2x^{\frac{-1}{3}}$

6. $\sqrt{4x^5}$ = $2x^{\frac{5}{2}}$ or $2x^{2.5}$

7. $\frac{5}{\sqrt[4]{x}}$ = $5x^{-0.25}$ or $5x^{\frac{-1}{4}}$

8. $\left(2\sqrt{x}\right)^3$ = $8x^{\frac{3}{2}}$ or $8x^{1.5}$

Simplify and write in the form x^n:

9. $\frac{\frac{1}{x^2}}{\frac{1}{x^5}}$ = x^3

10. $\frac{\sqrt{x}}{x^3}$ = $x^{\frac{-5}{2}}$ or $x^{-2.5}$

11. $\frac{x}{\sqrt[3]{x}}$ = $x^{\frac{2}{3}}$

12. $\frac{\sqrt[2]{x}}{\sqrt[3]{x}}$ = $x^{\frac{1}{6}}$

Of the four terms which, if any, is different from the others?

13. x^{-3} $\frac{1}{x^3}$ $(\frac{1}{\sqrt[3]{x}})^9$ $\frac{\frac{1}{\sqrt{x^7}}}{\frac{1}{\sqrt{x}}}$ are all the same

14. $x^2\sqrt{x}$ $x^{2.5}$ $\frac{x^3}{\sqrt{x}}$ are the same but $\left(\sqrt[5]{x}\right)^2 = x^{\frac{2}{5}} = x^{0.4}$ is different

15. $(x^3)^2$ $\left(\sqrt{x}\right)^{12}$ $\frac{1}{x^{-6}}$ $\left(\sqrt[3]{x}\right)^{18}$ are all the same

16. $\frac{x}{\sqrt[3]{x}}$ $\sqrt[3]{x^2}$ $\frac{\frac{1}{\sqrt[3]{x}}}{\frac{1}{x}}$ are all equal to $x^{\frac{2}{3}}$, so $x^{1.5}$ is the different one