MCS21 Homework 16

Use the power rule to find $\dfrac{dy}{dx}$. Express your answer in simplest form, using only positive exponents.

1. $y = 4x^7$

2. $y = -3x^{12}$

3. $y = 3x^8 + 2x + 1$

4. $y = \dfrac{1}{2}\left(x^4 + 7\right)$

5. $y = \pi^3$

6. $y = x\sqrt{2} + \dfrac{1}{\sqrt{2}}$

7. $y = -\dfrac{1}{3}\left(x^7 + 2x - 9\right)$

8. $y = \dfrac{x^2 + 1}{5}$

9. $y = ax^3 + bx^2 + cx + d$ (a, b, c, d constant)

10. $y = \dfrac{1}{a}\left(x^2 + \dfrac{1}{b}x + c\right)$ (a, b, c constant)

11. $y = -3x^{-8} + 2\sqrt{x}$

12. $y = 7x^{-6} - 5\sqrt{x}$

13. $y = x^{-3} + \dfrac{1}{x^7}$

14. $y = \sqrt{x} + \dfrac{1}{x}$