Homework #11

Simplify

1. $\frac{x}{5} + \frac{x}{3}$

2. $\frac{k}{5} \times \frac{k}{3}$

3. $\frac{x}{4} \div \frac{x}{2}$

4. $\frac{x}{8} - \frac{x}{2}$

5. $\frac{x}{y} \times y$

6. $\frac{2x}{5} \times \frac{10}{x^2}$

7. $\frac{7x}{3} - 4x$

8. $8x \div \frac{x}{2}$

9. $\frac{x}{4} - \frac{3x-1}{2}$

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

11. $\frac{9x+12}{3}$

12. $\frac{x^2+5x+4}{x+1}$

13. $\frac{x-2}{x^2+2x-8}$

14. $\frac{x^3+x^2}{x^2+7x}$

15. $\frac{x^2-3x-18}{x-6}$

16. $\frac{x-3}{x^2-9}$

Answers: Homework #11

"Simplify" means simplify fully, so **all** possible cancellations must be made

There is no point changing from fraction to decimal form: e.g. leave as $\frac{4}{x}$ *rather than* $4x^{-1}$

1. $\frac{x}{5} + \frac{x}{3} = \frac{3x}{15} + \frac{5x}{15} = \frac{8x}{15}$

2. $\frac{k}{5} \times \frac{k}{3} = \frac{k^2}{15}$

3. $\frac{x}{4} \div \frac{x}{2} = \frac{x}{4} \times \frac{2}{x} = \frac{2x}{4x}$ $= ½$

4. $\frac{x}{8} - \frac{x}{2} = \frac{x}{8} - \frac{4x}{8} = \frac{-3x}{8}$

5. $\frac{x}{y} \times y = \frac{x}{y} \times \frac{y}{1} = \frac{xy}{y}$ $= x$

6. $\frac{2x}{5} \times \frac{10}{x^2} = \frac{20x}{5x^2} = \frac{4}{x}$

7. $\frac{7x}{3} - 4x = \frac{7x}{3} - \frac{12x}{3} = \frac{-5x}{3}$

8. $8x \div \frac{x}{2} = \frac{8x}{1} \times \frac{2}{x} = \frac{16x}{x}$ $= 16$

9. $\frac{x}{4} - \frac{3x-1}{2} = \frac{x}{4} + \frac{-6x+2}{4} = \frac{-5x+2}{4}$

10. $\frac{2}{x^2} + \frac{3}{x} = \frac{2}{x^2} + \frac{3x}{x^2} = \frac{3x+2}{x^2}$

11. $\frac{9x+12}{3} = \frac{3(3x+4)}{3}$ $= 3x + 4$

12. $\frac{x^2+5x+4}{x+1} = \frac{(x+1)(x+4)}{x+1}$ $= x + 4$

13. $\frac{x-2}{x^2+2x-8} = \frac{x-2}{(x-2)(x+4)} = \frac{1}{x+4}$

14. $\frac{x^3+x^2}{x^2+7x} = \frac{x^2(x+1)}{x\,(x+7)} = \frac{x(x+1)}{x+7}$ or $\frac{x^2+x}{x+7}$

15. $\frac{x^2-3x-18}{x-6} = \frac{(x-6)(x+3)}{x-6}$ $= x + 3$

16. $\frac{x-3}{x^2-9} = \frac{x-3}{(x-3)(x+3)} = \frac{1}{x+3}$