FRACTIONAL EQUATIONS

Answer all of these questions. Remember to show your working out in all questions.

MAIN QUESTIONS

1. $x/2 = 5$ | $x = 10$

2. $3x/4 = 9$ | $x = 12$

3. $5/x = 1$ | $x = 5$

4. $2x + 1/3 = 5/3$ | $x = 2/3$

5. $x/5 - 2 = 3$ | $x = 25$

6. $4/x = 2/3$ | $x = 6$

7. $3/(x + 1) = 1$ | $x = 2$

8. $2x/3 - x/6 = 5$ | $x = 10$

9. $5/(2x) = 1/4$ | $x = 10$

10. $(x + 3)/4 = (2x - 1)/5$ | $x = 19/3$

11. $3/(x - 2) = 4/(x + 1)$ | $x = -11$

12. $2/(3x) + 1/6 = 1/2$ | $x = 2$

13. $(5x - 1)/3 = (2x + 4)/2$ | $x = 7/2$

14. $1/(x + 2) + 1/(x - 2) = 4/(x^2 - 4)$ | $x = 1$

15. $3/(2x - 1) - 2/(3x + 1) = 0$ | $x = 1$

16. $(x + 1)/x + (x - 1)/(x + 1) = 2$ | $x = -1/3$

17. $2/(x - 3) - 3/(x - 2) = 0$ | $x = 5$

18. $1/(x - 1) + 2/(x + 1) = 3/x$ | $x = 3$ or $x = -1/3$

19. $(x + 2)/(x - 1) - (x - 1)/(x + 2) = 5/2$ | $x = 0$ or $x = -5$

20. $3/(x^2 - 4) + 2/(x + 2) = 1/(x - 2)$ | $x = 5$

MASTER QUESTIONS

M1. A fraction becomes 1/2 when 1 is subtracted from the numerator and 2 is added to the denominator. It becomes 1/3 when 7 is subtracted from the numerator and 2 is subtracted from the denominator. Find the original fraction.

The original fraction is 7/8

M2. The sum of a number and its reciprocal is 10/3. Find the number.

The number is 3 or 1/3

M3. A car travels 120 miles at a certain speed. If the speed were 5 mph faster, the trip would take 1 hour less. Find the original speed.

The original speed is 15 mph

M4. Two pipes fill a tank in 6 hours. The larger pipe alone fills it in 10 hours less than the smaller pipe alone. How long does each pipe take to fill the tank alone?

The smaller pipe takes 15 hours and the larger pipe takes 5 hours

M5. A cyclist travels 20 km at a certain speed. If he had gone 2 km/h faster, he would have taken 20 minutes less. Find the original speed.

The original speed is 10 km/h