Calculate the following, giving your answer as a **percentage:**

1. 10% + 20%	
2. 20% - 10%	
3. 10% × 20%	
4. 10% ÷ 20%	
5. 5% + 10% × 20%	

Calculate the following, giving your answer as a **fraction:**

6. 5% + 0.25	
7. $\frac{3}{4} - 0.5$	
8. $30\% + \frac{3}{5}$	
9. $6\% \times \frac{2}{3}$	
10. $\frac{2}{5} \div 50\%$	

Calculate the following, giving your answer as a **decimal:**

11. $\frac{1}{8} \div 50\%$	
12. 30% × 20%	
13. $\frac{1}{4} + 40\%$	
14. 0.5 × 150%	
15. 0.2 ÷ 0.6	

Teaching notes

This exercise is designed to help students think about the best method to use when calculating and when to switch a quantity between a fraction, a decimal and a percentage.

Author's solutions:

Calculate the following, giving your answer as a percentage:

1. $10\% + 20\% = \frac{10}{100} + \frac{20}{100} = \frac{30}{100} = 30\%$
2. $20\% - 10\% = \frac{20}{100} - \frac{10}{100} = \frac{10}{100} = 10\%$
3. $10\% \times 20\% = \frac{10}{100} \times \frac{20}{100} = \frac{1}{10} \times \frac{2}{10} = \frac{2}{100} = 2\%$
4. $10\% \div 20\% = \frac{10}{100} \div \frac{20}{100} = \frac{10}{100} \times \frac{100}{20} = \frac{10}{20} = \frac{1}{2} = 50\%$
5. $5\% + 10\% \times 20\% = 5\% + 2\% = 7\%$ [from solutions 3. and 1.]

Calculate the following, giving your answer as a fraction in its lowest terms:

6. $5\% + 0.25 = 5\% + 25\% = 30\% = \frac{3}{10}$
7. $\frac{3}{4} - 0.5 = \frac{3}{4} - \frac{2}{4} = \frac{1}{4}$
8. $30\% + \frac{3}{5} = \frac{3}{10} + \frac{6}{10} = \frac{9}{10}$
9. $6\% \times \frac{2}{3} = \frac{6}{100} \times \frac{2}{3} = \frac{12}{300} = \frac{1}{25}$
10. $\frac{2}{5} \div 50\% = \frac{2}{5} \div \frac{1}{2} = \frac{2}{5} \times \frac{2}{1} = \frac{4}{5}$

Calculate the following, giving your answer as a decimal:

11. $\frac{1}{8} \div 50\% = \frac{1}{8} \div \frac{1}{2} = \frac{1}{8} \times \frac{2}{1} = \frac{1}{4} = 0.25$
12. $30\% \times 20\% = \frac{3}{10} \times \frac{2}{10} = \frac{6}{100} = 0.06$
13. $\frac{1}{4} + 40\% = 0.25 + 0.40 = 0.65$
14. $0.5 \times 150\% = \frac{1}{2} \times \frac{3}{2} = \frac{3}{4} = 0.75$
15. $0.2 \div 0.6 = \frac{1}{5} \div \frac{3}{5} = \frac{1}{5} \times \frac{5}{3} = \frac{1}{3} = 0.\dot{3}$