Pre Calculus: A little review from Alg. II

Factor the following:

1. $a^2x^2 - b^2y^2 =$

2. $x^2 - 2x + 1 =$

3. $x^3 + y^3 =$

4. $x^2 - 2xy + y^2 =$

5. $x^2 - 3xy - 4y^2 =$

6. $1 - x^2 =$

Simplify to lowest terms:

7. $\dfrac{x^2 + x - 6}{x^2 - 4} =$

8. $\dfrac{x^3 - y^3}{x^2 - y^2} =$

9. $\dfrac{4x^2 - 25y^2}{2x - 5y} =$

Simplify without using your calculator:

10. $\dfrac{\frac{2}{3}}{\frac{5}{6}} =$

11. $\dfrac{4}{\frac{2}{7}} =$

12. $\dfrac{5}{\frac{3}{5}} =$

13. $\dfrac{\frac{1}{2} + \frac{2}{3}}{\frac{1}{4} + \frac{1}{3}} =$

Write each as a single fraction:

14. $2 + \dfrac{5}{7} =$

15. $1 + \dfrac{x}{y} =$

16. $x + \dfrac{x^2}{y^2} =$

Simplify to lowest terms:

17. $\dfrac{x + y}{\frac{1}{x} + \frac{1}{y}} =$

18. $\dfrac{\frac{1}{x} + \frac{1}{y}}{\frac{1}{x} - \frac{1}{y}} =$