Algebraic Atrocities

1) True

2) $a(bc) = abc$

3) $x(x-1) = 6$
$x^2 - x - 6 = 0$
$(x-3)(x+2) = 0$
$x = 3 \quad x = -2$

4) $\dfrac{3}{a} + \dfrac{3}{b} = \dfrac{3b+3a}{ab}$

5) $\dfrac{a+b}{x+y}$ As is

6) If $a+b=0$, then $a=-b$

7) True

8) $\dfrac{10t+u}{10t+w}$ As is

9) $(x-y)^2 = x^2 - xy + y^2$

10) $\dfrac{5}{x+y}$ As is

11) $\dfrac{a}{b}$ As is

12) True

13) $\dfrac{x+2}{x}$ As is

14) $\dfrac{1}{\frac{1}{a}+1} = \dfrac{1}{\frac{1+a}{a}} = \dfrac{a}{1+a}$

15) $x^2 - 5x - 6 > 0$
$(x-6)(x+1) > 0$
$\xleftarrow{\quad + \quad - \quad + \quad}\xrightarrow{}$
$\quad\; T\; {-1}\; F\; 6\; T$ $\quad x < -1$ or $x > 6$

16) True

17) $\dfrac{2}{x} \cdot \dfrac{4}{y} = \dfrac{8}{xy}$

18) $-2(x+y) = -2x - 2y$

19) True

20) $2x^{-1} = \dfrac{2}{x}$

21) $x^2 = 4$
$x = \pm 2$

22) True

23) True

24) True

25) $(x+y)^2 = (x+y)(x+y)$
$\qquad = x^2 + 2xy + y^2$

26) $x^3 + y^3$ As is

27) $x^3 - y^3 = (x-y)(x^2+xy+y^2)$

28) $\sqrt{a+b}$ As is

29) $\sqrt{a^2+b^2}$ As is

30) $x(a+2) + y(a+2) =$
$\qquad (a+2)(x+y)$