Screen	Question	Solution	3 wrong answer options
1	Simplify: $$\frac{5x^2 - 10xy}{6xy^2 - 3x^2y}$$	$$\frac{5x^2 - 10xy}{6xy^2 - 3x^2y}$$ $$= \frac{5x(x - 2y)}{-3xy(x - 2y)}$$ $$= -\frac{5}{3y}$$	$$\frac{5}{3y}$$ $$-\frac{5x}{3y}$$ $$\frac{5x}{3y}$$
	Simplify: $$\frac{x^4 - 4x^2y^2 + 4y^4}{x^3 - 2xy^2}$$	$$\frac{x^4 - 4x^2y^2 + 4y^4}{x^3 - 2xy^2}$$ $$= \frac{(x^2 - 2y^2)(x^2 - 2y^2)}{x(x^2 - 2y^2)}$$ $$= \frac{(x^2 - 2y^2)}{x}$$	$$\frac{(x^2 + 2y^2)}{x}$$ $$\frac{(x^2 - 2y^2)}{xy}$$ $$\frac{(x^2 - 4y^2)}{x}$$
	Simplify: $$\frac{p^2x^2 - 16p^2}{px^2 + 9px + 20p}$$	$$\frac{p^2x^2 - 16p^2}{px^2 + 9px + 20p}$$ $$= \frac{p^2(x + 4)(x - 4)}{p(p + 4)(p + 5)}$$ $$= \frac{p(x - 4)}{p + 5}$$	$$\frac{p(x + 4)}{p + 5}$$ $$\frac{p(x - 4)}{px + 5}$$ $$\frac{(x - 4)}{p + 5}$$

2	Simplify: $$\frac{x^2-4}{x^2-36} \times \frac{x^2+6x}{x+2}$$	$$\frac{x^2-4}{x^2-36} \times \frac{x^2+6x}{x+2}$$ $$=\frac{(x+2)(x-2)}{(x+6)(x-6)} \times \frac{x(x+6)}{(x+2)}$$ $$=\frac{x(x-2)}{(x-6)}$$	$$\frac{(x-2)}{(x-6)}$$ $$\frac{x(x+2)}{(x-6)}$$ $$\frac{x(x-2)}{(x+6)}$$
	Simplify: $$\frac{x^2-5x+6}{1-x^2} \times \frac{x^2+2x-3}{9-x^2}$$	$$\frac{x^2-5x+6}{1-x^2} \times \frac{x^2+2x-3}{9-x^2}$$ $$=-\frac{(x-3)(x-2)}{(x+1)(x-1)} \times \frac{(x+3)(x-1)}{-(x+3)(x-3)}$$ $$=\frac{(x-2)}{(x+1)}$$	$$-\frac{(x-2)}{(x+1)}$$ $$\frac{(x+2)}{(x-1)}$$ $$\frac{(x-2)}{(x-1)}$$
	Simplify: $$\frac{16y^2-49}{2y^2-y-1} \div \frac{4y^2+y-14}{2y^2+5y+2}$$	$$\frac{16y^2-49}{2y^2-y-1} \div \frac{4y^2+y-14}{2y^2+5y+2}$$ $$=\frac{(4y+7)(4y-7)}{(2y+1)(y-1)} \times \frac{(2y+1)(y+2)}{(4y-7)(y+2)}$$ $$=\frac{(4y+7)}{(y-1)}$$	$$\frac{(4y+7)(y-2)}{(y-1)}$$ $$\frac{(4y+7)}{(y-1)(y+2)}$$ $$\frac{-(4y+7)}{(y-1)}$$

3	*Simplify:* $$\dfrac{x^2}{x^2-y^2}+\dfrac{x}{y-x}$$	$$\dfrac{x^2}{x^2-y^2}+\dfrac{x}{y-x}$$ $$=\dfrac{x^2}{(x+y)(x-y)}-\dfrac{x}{x-y}$$ $$=\dfrac{x^2-x(x+y)}{(x+y)(x-y)}$$ $$=\dfrac{-xy}{(x+y)(x-y)}$$	$$\dfrac{xy}{(x+y)(x-y)}$$ $$\dfrac{2xy}{(x+y)(x-y)}$$ $$\dfrac{x^2}{(x+y)(x-y)}$$
	Simplify: $$\dfrac{1}{t^2-3t+2}+\dfrac{3}{2+t-t^2}$$	$$\dfrac{1}{t^2-3t+2}+\dfrac{3}{2+t-t^2}$$ $$=\dfrac{1}{(t-2)(t-1)}-\dfrac{3}{t^2-t-2}$$ $$=\dfrac{1}{(t-2)(t-1)}-\dfrac{3}{(t-2)(t+1)}$$ $$=\dfrac{t+1-3t+3)}{(t-2)(t-1)(t+1)}$$ $$=\dfrac{-2t+4}{(t-2)(t-1)(t+1)}$$ $$=\dfrac{-2(t-2)}{(t-2)(t-1)(t+1)}$$ $$=\dfrac{-2}{(t-1)(t+1)}$$	$$\dfrac{2}{(t-1)(t+1)}$$ $$\dfrac{-2}{(t-2)(t+1)}$$ $$\dfrac{-2}{(t-1)(t+1)(t-2)}$$
	Simplify: $$\dfrac{2}{x^2-11x+30}+\dfrac{2}{x^2-9x+20}$$	$$\dfrac{2}{x^2-11x+30}+\dfrac{2}{x^2-9x+20}$$ $$=\dfrac{2}{(x-6)(x-5)}+\dfrac{2}{(x-4)(x-5)}$$ $$=\dfrac{2(x-4)+2(x-6)}{(x-6)(x-5)(x-4)}$$ $$=\dfrac{4(x-5)}{(x-6)(x-5)(x-4)}$$ $$=\dfrac{4}{(x-6)(x-4)}$$	$$\dfrac{-4}{(x-6)(x-4)}$$ $$\dfrac{(x-5)}{(x-6)(x-4)}$$ $$\dfrac{4(x-5)}{(x-6)(x-4)}$$

4	*Simplify*: $$\dfrac{3x^2}{x^2-x-6}-\dfrac{3}{x-3}-\dfrac{3x}{x+2}$$	$$\dfrac{3x^2}{x^2-x-6}-\dfrac{3}{x-3}-\dfrac{3x}{x+2}$$ $$=\dfrac{3x^2}{(x-3)(x+2)}-\dfrac{3}{x-3}-\dfrac{3x}{x+2}$$ $$=\dfrac{3x^2-3(x+2)-3x(x-3)}{(x-3)(x+2)}$$ $$=\dfrac{3x^2-3x-6-3x^2+9x}{(x-3)(x+2)}$$ $$=\dfrac{6x-6}{(x-3)(x+2)}$$	$$\dfrac{6x}{(x-3)(x+2)}$$ $$\dfrac{x-1}{(x-3)(x+2)}$$ $$\dfrac{1}{(x-3)(x+2)}$$
	Simplify: $$\dfrac{x-3}{x-5}-\dfrac{x-23}{20+x-x^2}$$	$$\dfrac{x-3}{x-5}-\dfrac{x-23}{20+x-x^2}$$ $$=\dfrac{x-3}{x-5}+\dfrac{x-23}{(x-5)(x+4)}$$ $$=\dfrac{(x-3)(x+4)+x-23}{(x-5)(x+4)}$$ $$=\dfrac{x^2+x-12+x-23}{(x-5)(x+4)}$$ $$=\dfrac{x^2+2x-35}{(x-5)(x+4)}$$ $$=\dfrac{(x-5)(x+7)}{(x-5)(x+4)}$$ $$=\dfrac{x+7}{x+4}$$	$$\dfrac{x-7}{x-5}$$ $$\dfrac{x-7}{x+4}$$ $$\dfrac{x+7}{x-5}$$
	Simplify: $$\dfrac{x^2+xy+y^2}{x+y}-\dfrac{x^2-xy+y^2}{y-x}$$	$$\dfrac{x^2+xy+y^2}{x+y}-\dfrac{x^2-xy+y^2}{y-x}$$ $$=\dfrac{x^2+xy+y^2}{x+y}+\dfrac{x^2-xy+y^2}{x-y}$$	$$\dfrac{-2x^3}{(x+y)(x-y)}$$ $$\dfrac{2x^3-y^3}{(x+y)(x-y)}$$

| | | $= \dfrac{(x-y)(x^2+xy+y^2)+(x+y)(x^2-xy+y^2)}{(x+y)(x-y)}$ $= \dfrac{(x^3-y^3)+(x^3+y^3)}{(x+y)(x-y)}$ $= \dfrac{2x^3}{(x+y)(x-y)}$ | $\dfrac{2x^3+y^3}{(x+y)(x-y)}$ |

5	*Simplify:* $$\frac{x-y}{y}+\frac{x+y}{x}-\frac{x^2-y^2}{2xy}$$	$$\frac{x-y}{y}+\frac{x+y}{x}-\frac{x^2-y^2}{2xy}$$ $$=\frac{2x(x-y)+2y(x+y)-(x^2-y^2)}{2xy}$$ $$=\frac{2x^2-2xy+2xy+2y^2-x^2+y^2}{2xy}$$ $$=\frac{x^2+3y^2}{2xy}$$	$$\frac{x^2-3y^2}{2xy}$$
			$$\frac{x^2+2y^2}{2xy}$$
			$$\frac{x^2+3y^2}{xy}$$
	Simplify: $$\frac{2x}{x^2-y^2}+\frac{1}{x+y}-\frac{1}{x-y}$$	$$\frac{2x}{x^2-y^2}+\frac{1}{x+y}-\frac{1}{x-y}$$ $$=\frac{2x+x-y-x-y}{(x+y)(x-y)}$$ $$=\frac{2x-2y}{(x+y)(x-y)}$$ $$=\frac{2(x-y)}{(x+y)(x-y)}$$ $$=\frac{2}{x+y}$$	$$\frac{2(x-y)}{x+y}$$
			$$\frac{x-y}{x+y}$$
			$$\frac{2}{x-y}$$
	Simplify: $$\frac{x}{x-1}+\frac{x(1+x^2)}{1-x^3}-\frac{1+x}{1+x+x^2}$$	$$\frac{x}{x-1}+\frac{x(1+x^2)}{1-x^3}-\frac{1+x}{1+x+x^2}$$ $$=\frac{x}{x-1}-\frac{x(x^2+1)}{(x-1)(x^2+x+1)}-\frac{x+1}{x^2+x+1}$$ $$=\frac{x(x^2+x+1)-x(x^2+1)-(x-1)(x+1)}{(x-1)(x^2+x+1)}$$ $$=\frac{x^3+x^2+x-x^3-x-x^2+1}{(x^3-1)}$$ $$=\frac{1}{(x^3-1)}$$	$$\frac{1}{(x+1)(x^2+x+1)}$$
			$$\frac{-1}{(x^3-1)}$$
			$$\frac{x}{(x^3+1)}$$