

Workout

Question 1: Simplify the following algebraic fractions

(a) $\frac{42xyz}{56}$ (b) $\frac{45ab}{60abc}$ (c) $\frac{16mn}{18n}$ (d) $\frac{40x^2y}{32xy}$

$\frac{3xyz}{4}$ *$\frac{3}{4c}$* *$\frac{8m}{9}$* *$\frac{5x}{4}$*

(e) $\frac{17cf}{34c^3}$ (f) $\frac{8x^4}{2x^2}$ (g) $\frac{33a^2b^2}{44a^3b}$ (h) $\frac{12x^3}{20x^7}$

$\frac{f}{2c^2}$ *$4x^2$* *$\frac{3b}{4a}$* *$\frac{3}{5x^4}$*

Question 2: Simplify the following algebraic fractions

(a) $\frac{6x+8}{2}$ (b) $\frac{9x-12}{3}$ (c) $\frac{35x^2+20}{5}$

$3x+4$ *$3x-4$* *$7x^2+4$*

(d) $\frac{7m-70n^3}{7}$ (e) $\frac{10c+25}{15}$ (f) $\frac{8w+2-4x}{12}$

$m-10n^3$ *$\frac{2c+5}{3}$* *$\frac{4w+1-2x}{6}$*

(g) $\frac{9x^2+12x+33}{6}$ (h) $\frac{3x^2+5x}{x}$ (i) $\frac{3x^3-7x^2}{x}$

$\frac{3x^2+4x+11}{2}$ *$3x+5$* *$3x^2-7x$*

(j) $\frac{8x^6+x^4+3x}{x}$ (k) $\frac{10x^7+15x^5-30x^4}{5x}$ (l) $\frac{3c^6-15c^4}{6c}$

$8x^5+x^3+3$ *$2x^6+3x^4-6x^3$* *$\frac{c^5-5c^3}{2}$*

(m) $\frac{-8x^5-12x^4+2x^3}{-4x}$ (n) $\frac{6c^9-12c^3}{3c^2}$ (o) $\frac{6c^6+2c^2}{4c^4}$

$\frac{2x^4+3x^3-x^2}{2}$ *$2c^7-4c$* *$\frac{3c^4+1}{2c^2}$*

Simplifying Algebraic Fractions

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Question 3: Simplify the following algebraic fractions

(a) $\frac{(x+6)\cancel{(x+3)}}{\cancel{(x+3)}} \quad x+6$ (b) $\frac{\cancel{(x-1)}(x+1)}{\cancel{(x-1)}} \quad x+1$ (c) $\frac{\cancel{(x-3)}}{(x-4)\cancel{(x-3)}} \quad \frac{1}{x-4}$

(d) $\frac{(x+7)^2}{(x+7)} \quad x+7$ (e) $\frac{(x-3)\cancel{(x+2)}}{\cancel{(x+2)}(x+9)} \quad \frac{x-3}{x+9}$ (f) $\frac{(x+2)\cancel{(x+4)}^2}{\cancel{(x+4)}} \quad \begin{matrix} (x+2)(x+4) \\ \text{or} \\ x^2+6x+8 \end{matrix}$

(g) $\frac{(x+1)\cancel{(x+2)}\cancel{(x+3)}}{\cancel{(x+2)}\cancel{(x+3)}(x+4)} \quad \frac{x+1}{x+4}$ (h) $\frac{\cancel{x}(x+3)^2}{\cancel{x}(x+1)\cancel{(x+3)}} \quad \frac{x+3}{x+1}$

Question 4: Simplify the following algebraic fractions

(a) $\frac{x^2+5x+4}{x^2+4x+3} \quad \frac{x+4}{x+3}$ (b) $\frac{x^2+6x+9}{x^2-2x-15} \quad \frac{x+3}{x-5}$ (c) $\frac{x^2-2x}{x^2+2x-8} \quad \frac{x}{x+4}$

(d) $\frac{x^2-7x+10}{x^2+3x-10} \quad \frac{x-5}{x+5}$ (e) $\frac{x^2+8x+15}{x^2-x-12} \quad \frac{x+5}{x-4}$ (f) $\frac{x^2+13x+40}{x^2+14x+48} \quad \frac{x+5}{x+6}$

(g) $\frac{x^2-2x-8}{x^2+6x-40} \quad \frac{x+2}{x+10}$ (h) $\frac{x^2+10x+24}{x^2-36} \quad \frac{x+4}{x-6}$ (i) $\frac{x^2+4x-45}{x^2+10x+9} \quad \frac{x-5}{x+1}$

(j) $\frac{x^2+11x}{x^2-121} \quad \frac{x}{x-11}$ (k) $\frac{x^2-1}{x^2+x} \quad \frac{x-1}{x}$ (l) $\frac{x^2-15x+44}{x^2-16} \quad \frac{x-11}{x+4}$

(m) $\frac{x^2-x-6}{x^2-2x-3} \quad \frac{x+2}{x+1}$

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Question 5: Simplify the following algebraic fractions

(a)
$$\frac{3x^2 + 7x + 4}{x^2 + 3x + 2}$$

(b)
$$\frac{x^2 - 2x - 8}{3x^2 + 7x + 2}$$

(c)
$$\frac{5x^2 - 13x - 6}{x^2 - 9}$$

(d)
$$\frac{2x^2 + 3x - 2}{2x^2 - 15x + 7}$$

(e)
$$\frac{9x^2 - 1}{3x^2 - 13x + 4}$$

(f)
$$\frac{x^2 + 17x + 70}{5x^2 + 38x + 21}$$

(g)
$$\frac{3x^2 + 5x - 12}{12x^2 - 19x + 4}$$

(h)
$$\frac{3x^2 + 11x + 6}{9x^2 + 21x + 10}$$

(i)
$$\frac{4x^2 + x - 3}{4x^2 + 9x + 5}$$

(j)
$$\frac{9x^2 - 30x + 25}{6x^2 + 5x - 25}$$

(k)
$$\frac{10x^2 - 23x + 12}{4x^2 + 4x - 15}$$

(l)
$$\frac{20x^2 + 21x + 4}{16x^2 - 1}$$

(a)
$$\frac{3x+4}{x+2}$$

(b)
$$\frac{x-4}{3x+1}$$

(c)
$$\frac{5x+2}{x+3}$$

(d)
$$\frac{x+2}{x-7}$$

(e)
$$\frac{3x+1}{x-4}$$

(f)
$$\frac{x+10}{5x+3}$$

(g)
$$\frac{x+3}{4x-1}$$

(h)
$$\frac{x+3}{3x+5}$$

(i)
$$\frac{4x-3}{4x+5}$$

(j)
$$\frac{3x-5}{2x+5}$$

(k)
$$\frac{5x-4}{2x+5}$$

(l)
$$\frac{5x+4}{4x-1}$$