Student's name

Problem 1. Simplify each expression

i) $\dfrac{35n}{35n^2}$

ii) $\dfrac{45x^2}{25x}$

iii) $\dfrac{x-8}{x^2+x-72}$

iv) $\dfrac{p^2-3p-54}{p-9}$

v) $\dfrac{56v-72}{32v}$

vi) $\dfrac{v^2+7v-30}{9v^2+90v}$

vii) $\dfrac{xy+3x-2y-6}{y^2+y-6}$

viii) $\dfrac{5m^2-57mn+70n^2}{2m^2-16mn-40n^2}$

ix) $\dfrac{2x^3+16x^2+24x}{x^2-x-6}$

x) $\dfrac{ax-ay+bx-by}{ax-ay-bx+by}$

Problem 2. Multiply and simplify

i) $\dfrac{5y^2}{3}\cdot\dfrac{9x}{10y}$

ii) $\dfrac{9y^2}{8}\cdot\dfrac{32x}{27y}$

iii) $\dfrac{4x^2y}{2z^2}\cdot\dfrac{6xz^3}{20y^4}$

iv) $\dfrac{x+4}{3x+4y}\cdot\dfrac{9x^2-16y^2}{2x^2+3x-20}$

v) $\dfrac{3x-6}{5x}\cdot\dfrac{x^3}{5x-10}$

vi) $\dfrac{5t^3}{4t-8}\cdot\dfrac{6t-12}{10t}$

vii) $\dfrac{y^2-16}{2y+6}\cdot\dfrac{y+3}{y-4}$

viii) $\dfrac{x^2-16}{x^2}\cdot\dfrac{x^2-4x}{x^2-x-12}$

ix) $\dfrac{y^2-10y+9}{y^2-1}\cdot\dfrac{y+4}{y^2-5y-36}$

x) $\dfrac{4x^2-9y^2}{8x^3-27y^3}\cdot\dfrac{4x^2+6xy+0y^2}{4x^2+6xy+0y^2}$

Problem 3. Divide and simplify

i) $28p^2q^4 \div \dfrac{4pq^4}{5r}$

ii) $\dfrac{u^5x}{y}\div\dfrac{ux^2}{y^4}$

iii) $\dfrac{16a^7}{3b^5}\div\dfrac{8a^3}{6b}$

iv) $\dfrac{3y+15}{y^7}\div\dfrac{y+5}{Y^2}$

v) $\dfrac{3x^2+4x+1}{3x^2-5x-2}\div\dfrac{x^2-2x-3}{-5x^2+25x-30}$

vi) $\dfrac{y^2-9}{y^2}\div\dfrac{y^5+3y^4}{y+2}$

vii) $\dfrac{x^2-16}{x^2-10x+25}\div\dfrac{3x-12}{x^2-3x-10}$

viii) $\dfrac{y^2-16}{y^2-8y+16}\div\dfrac{3y-18}{y^2-y-12}$

ix) $\dfrac{a^3+4a}{a^2-16}\div\dfrac{a^2+8a+15}{a^2+a-20}$

x) $\dfrac{x^3+8y^3}{2x^2+5xy+2y^2}\div\dfrac{x^3-2x^2y+4xy^2}{8x^2-2y^2}$

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Problem 4. Divide and simplify

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

ii) $\dfrac{8}{x}+\dfrac{x+9}{x}$

iii) $\dfrac{2}{3x}+\dfrac{4}{x}$

iv) $\dfrac{6}{5x^3y}-\dfrac{1}{2x^2y^3}$

v) $2x-\dfrac{x}{y}$

vi) $\dfrac{x-1}{x+2}-\dfrac{x+3}{x-4}$

vii) $\dfrac{x-1}{x-2}-\dfrac{x^2+4x-4}{x^2+4x-12}$

viii) $-\dfrac{x-2}{x^2-2x-8}-\dfrac{x-1}{x^2-4}$

ix) $\dfrac{x+1}{x^2+6x+9}+\dfrac{x-4}{x^2-9}$

x) $\dfrac{1}{x+1}-\dfrac{x}{x-2}+\dfrac{x^2+2}{x^2-x-2}$

Problem 5. Simplify

i) $\left(\dfrac{1}{x}+\dfrac{1}{y}\right)\div(x^2-y^2)$

ii) $\left(\dfrac{1}{x-1}-\dfrac{1}{x+1}\right)\div\dfrac{1-x^2}{x}$

iii) $\dfrac{1}{x-1}-\dfrac{1}{x+1}\div\dfrac{1-x^2}{x}$

iv) $\dfrac{1}{x-1}-\dfrac{1}{x+1}\cdot\dfrac{1-x^2}{x}$

v) $\left(\dfrac{1}{x-1}-\dfrac{1}{x+1}\right)\cdot\dfrac{1-x^2}{x}$

vi) $\dfrac{\dfrac{1}{1-x}-\dfrac{1}{x}}{\dfrac{1}{1-x^2}}$

vii) $\dfrac{1-\dfrac{7}{y}+\dfrac{12}{y^2}}{1+\dfrac{1}{y}-\dfrac{20}{y^2}}$