a) $\frac{25y}{4x^2} \div \frac{35y^8}{32x^5}$

$= \frac{25y}{4x^2} \cdot \frac{32x^5}{35y^8}$

$= \frac{25}{35} \cdot \frac{32}{4} \cdot \frac{x^5}{x^2} \cdot \frac{y}{y^8}$

$= \frac{5}{7} \cdot 8 \cdot x^3 \cdot \frac{1}{y^7}$

$= \frac{40x^3}{7y^7}$

nevs
$x = 0$
$y = 0$

b) $\frac{42x^2y^3}{-81x^4y^5} \div \frac{49x^4y^2}{18xy}$

$= \frac{42x^2y^3}{-81x^4y^5} \cdot \frac{18xy}{49x^4y^2}$

$= \frac{42}{49} \cdot \frac{18}{-81} \cdot \frac{x^3}{x^8} \cdot \frac{y^4}{y^7}$

$= \frac{6}{7} \cdot \frac{-2}{9} \cdot \frac{1}{x^5} \cdot \frac{1}{y^3}$

$= \frac{-12}{63x^5y^3}$

nevs
$x = 0$
$y = 0$

c) $\frac{x^2-3x-40}{14x+2} \div \frac{64-x^2}{7x+1}$

$= \frac{x^2-3x-40}{14x+2} \cdot \frac{7x+1}{64-x^2}$

$= \frac{(x-8)(x+5)}{2(7x+1)} \cdot \frac{7x+1}{(8-x)(8+x)}$

$= \frac{-(x+5)}{2(8+x)}$

nev
$x = -\frac{1}{7}$
$8 = x$
$x = -8$

d) $\frac{x^2-3x-18}{x^2+6x+9} \div \frac{x^2+3x+2}{x^2+8x+15}$

$= \frac{x^2-3x-18}{x^2+6x+9} \cdot \frac{x^2+8x+15}{x^2+3x+2}$

$= \frac{(x-6)(x+3)}{(x+3)(x+3)} \cdot \frac{(x+3)(x+5)}{(x+2)(x+1)}$

$= \frac{(x-6)(x+5)}{(x+2)(x+1)}$

nev
$x = -3$
$x = -2$
$x = -1$
$x = -5$

e) $\frac{14a+6}{6a^2-20a} \div \frac{14a^2+13a+3}{6a^2-17a-10}$

$= \frac{14a+6}{6a^2-20a} \cdot \frac{6a^2-17a-10}{14a^2+13a+3}$

$= \frac{2(7a+3)}{2a(3a-10)} \cdot \frac{(3a-10)(2a+1)}{(2a+1)(7a+3)}$

$= \frac{1}{a}$

nev
$a = 0$
$a = \frac{10}{3}$
$a = -\frac{1}{2}$
$a = -\frac{3}{7}$