$\frac{25}{-2} = -12.5$ ✓

$\frac{-24}{-3} = 8$

$\frac{-33}{3} = -11$

a.

×	−2	4	**−6**	**+8**
−3	6	−12	18	−24
−10	20	−40	60	−80
−5	10	−20	30	−40
−7	14	−28	42	−56

b.

÷	32	−24	−36	**−4**
12	2.66	−2	−3	−0.33
−8	−4	3	4.5	0.5
6	5.33	−4	−6	−0.66
−4	−8	6	9	1

$-\frac{4}{6}$

$= -\frac{2}{3}$

$-0.\dot{6}$

$-0.\overline{67}$

$= -0.6767...$

$6\overline{)32}$ 5 R 2

5.33

$\frac{32}{12} = \frac{16}{6} = \frac{8}{3}$

$= 2\frac{2}{3} = 2.666$

$\frac{8}{-8} \times \frac{x}{-8} = \frac{3}{-8}$

$x = 3 \times -8 = -24$

$\frac{p \times q}{2x-5} < 0$

$p = 2, \ q = 3$ ✓

$\frac{6}{-10} < 0$ ✓

(1) ++, (2) +−, (3) −+, (4) −−

$p = 2, \ q = -3$

$\frac{-6}{-10} < 0$ ✗

$x < 0$ (less)

$x > 0$ (greater)

Signs	p, q	$\frac{p \times q}{2x-5} < 0$	Result
++	$p = 2, \ q = 3$	$\frac{2 \times 3}{2x-5}$	< 0 (−) ✓
+−	$p = 2, \ q = -3$	$\frac{2 \times -3}{2x-5}$	> 0 (+) ✗
−+	$p = -2, \ q = +3$	$\frac{-2 \times 3}{2x-5}$	> 0 (+) ✗
−−	$p = -2, \ q = -3$	$\frac{-2 \times -3}{2x-5}$	< 0 (−) ✓

(we can deduce that) p and q must be the same sign!!!

$\frac{(-a)^2}{(-b)^4} > 0$ deduction about b

want to make this positive, so we need a NEGATIVE b.

$(-b)^4$ +

$a = 1, \ a = 2, \ a = 3$

$(-1)^2, \ (-2)^2, \ (-3)^2$

$= 1, \ 4, \ 9$

$(-1)^3, \ (-2)^3, \ (-3)^3$

$-1, \ -8, \ -27$

Whenever a number is SQUARED, the answer ALWAYS ends up being POSITIVE.

Whenever a number is CUBED, the answer, the answer can be positive or negative depending on the SIGN (negative cubed will always give a negative).

$\frac{(-a)^2}{(-b)^4} = \frac{(-2)^2}{(-6)^4} = \frac{-8}{+1296}$

$= \frac{-4}{648} = \frac{-1}{162}$ ✓

$2\overline{)1296}$

36

$8\overline{)1296}$

$\frac{(-1)^{n+1}}{(-1)^{n+2}}, \quad n > 0$

n is even

$n = 2$

$\frac{(-1)^3}{(-1)^4} = \frac{-1}{1} = -1$ ✓

n is odd

$n = 1$

$\frac{(-1)^2}{(-1)^3} = \frac{1}{-1} = -1$ ✓

15. *Acceleration* is a measure of a change in speed or velocity. If you are increasing speed, acceleration is positive; if you are decreasing speed (slowing down) acceleration is negative. (You will need to do some research to answer this question.)

a. Is it possible to have positive acceleration with a negative velocity? If so, give an example.

b. Is it possible to have negative acceleration with a positive velocity? If so, give an example.

16. My last five scores in a very silly computer game have been +6, −9, −15, +8 and −4. What is my average score?

Reflection

Can you list 4 areas in real life where directed numbers are used?