



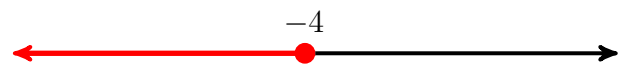
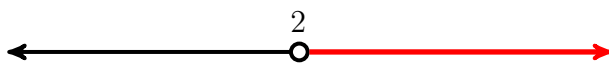
MTM3100 - Pré-cálculo

Gabarito parcial da 2ª lista de exercícios

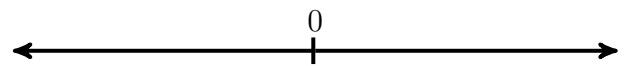
1. (a) V; (b) F; (c)
 (d) V; (e) V; (f)
2. (a) V; (b) F; (c)
 (d) F; (e) F; (f)
 (g) F; (h) V; (i)
3. (a) V; (b) V; (c) (d) V;
 (e) V; (f) (g) V; (h) F;
 (i) (j) F.

4. (a) V; (b) V; (c) (d) V;
 (e) F; (f) (g) F; (h) V.

5. (a) $A = \{x \in \mathbb{R} \mid x > 2\} =]2, \infty[= (2, \infty)$. (b) $C = \{x \in \mathbb{R} \mid x \leq -4\} = (-\infty, -4]$.



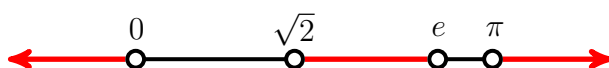
- (c) $E = \{x \in \mathbb{R} \mid -\pi \leq x \leq -3\} = [-\pi, -3]$. (d) $G = \{x \in \mathbb{R} \mid 2 < x < 1\} = \emptyset$.



- (e) $I = \{x \in \mathbb{R} \mid x \leq -3 \text{ ou } 0 < x \leq 5\} = (-\infty, -3] \cup (0, 5]$. (f) $K = \{x \in \mathbb{R} \mid x \leq -2 \text{ ou } x > 1\} = (-\infty, -2] \cup (1, \infty)$.



- (g) $M = \{x \in \mathbb{R} \mid x < 0 \text{ ou } \sqrt{2} < x < e \text{ ou } x > \pi\} = (-\infty, 0) \cup (\sqrt{2}, e) \cup (\pi, \infty)$.



6. (a) $\{x \in \mathbb{R} \mid 2 < x < 6\} = (2, 6)$. (b) $\{x \in \mathbb{R} \mid x \leq 2 \text{ ou } x \geq 6\} = (-\infty, 2] \cup [6, \infty)$.
 (c) $\{x \in \mathbb{R} \mid x \leq -12\} = (-\infty, -12]$. (d) $\{x \in \mathbb{R} \mid -1 \leq x < 5\} = [-1, 5)$.
 (e) $\{x \in \mathbb{R} \mid x \leq 0\} = \mathbb{R}_- = (-\infty, 0]$. (f) $\{x \in \mathbb{R} \mid -6 \leq x < -3 \text{ ou } x > -1\} = [-6, -3) \cup (-1, \infty)$.
 (g) $\{x \in \mathbb{R} \mid 0 \leq x \leq 1 \text{ ou } 2 \leq x \leq 3\} = [0, 1] \cup [2, 3]$. (h) $\{x \in \mathbb{R} \mid x = 3 \text{ ou } \pi < x < 4\} = \{3\} \cup (\pi, 4)$.

7. (a) $A \cap B = (0, 3]$. (b) $A - B = (-2, 0]$.

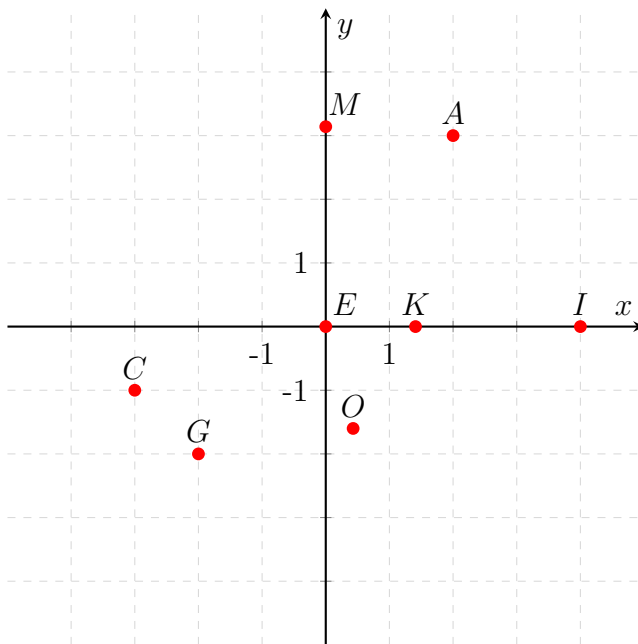
(c) $\complement_{\mathbb{R}}^A = \mathbb{R} - A = \overline{A} = (-\infty, -2] \cup (3, \infty)$.

8. (a) $A \cup B = \left[-\frac{1}{2}, \frac{15}{7}\right]$. (b) $B - A = \emptyset$.

(c) $\complement_{\mathbb{R}}^B = \mathbb{R} - B = \overline{B} = (-\infty, -\frac{1}{3}] \cup (2, \infty)$.

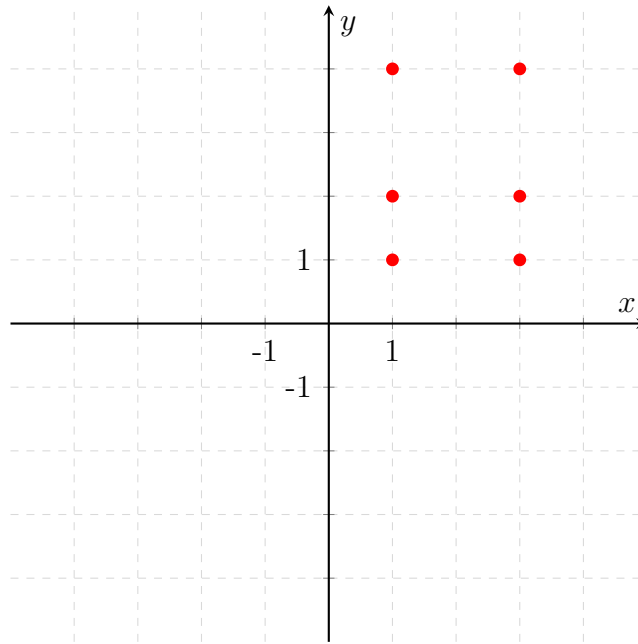
9. $M = [(A \cap B \cap C) \cup (\overline{B \cup C})] - A = (-\infty, -3) \cup [4, 5) \cup (5, \infty)$.

10.



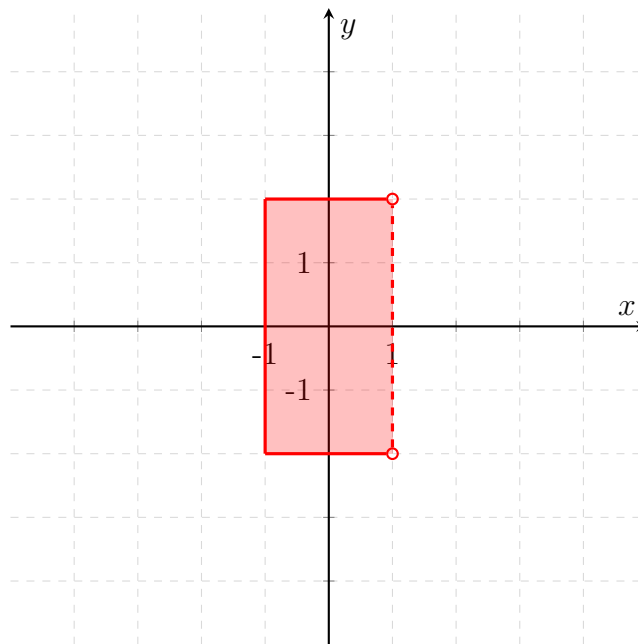
11. (a) sobre o eixo das ordenadas (ou eixo y);
 (b) sobre o eixo das abscissas (ou eixo x);
 (c) sobre a bissetriz dos quadrantes 1 e 3;
 (d) sobre a bissetriz dos quadrantes 2 e 4.

12. (a)

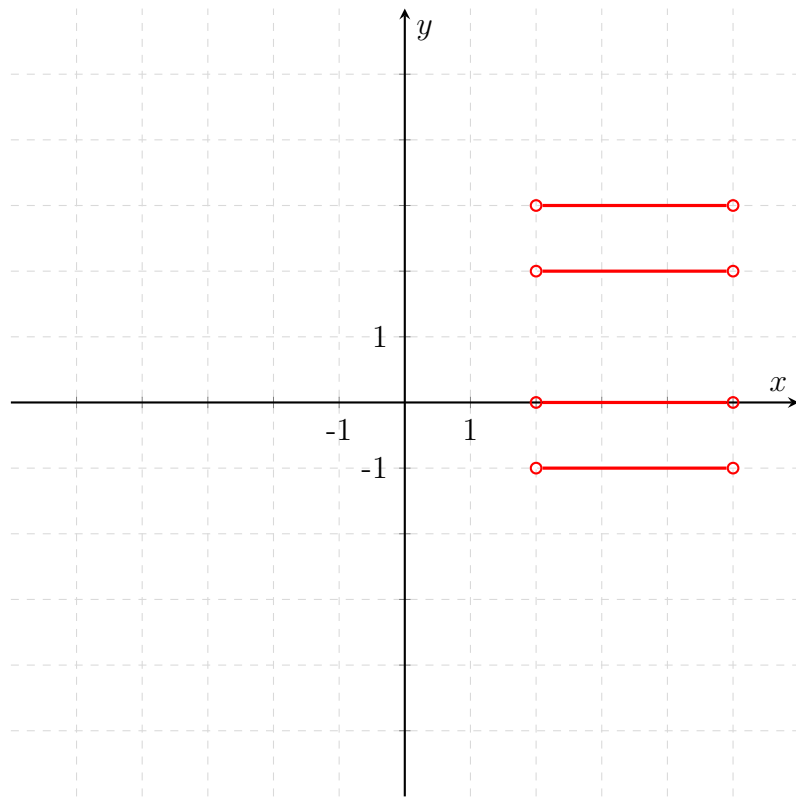


(b)

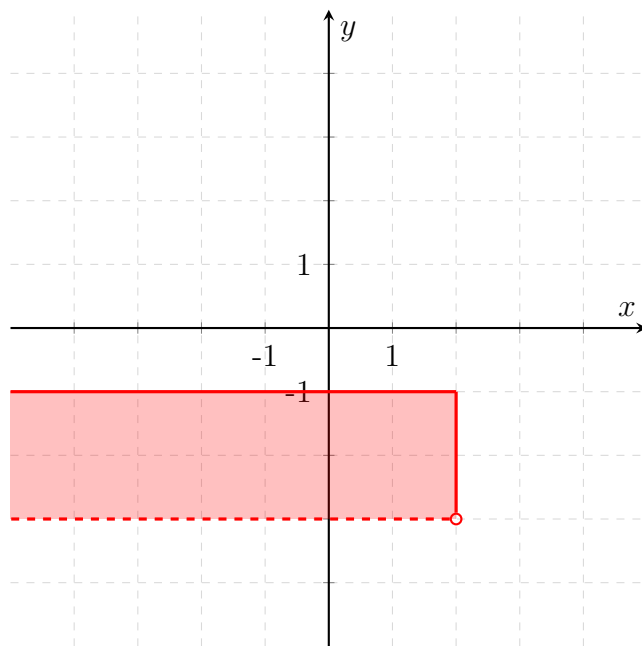
(c)



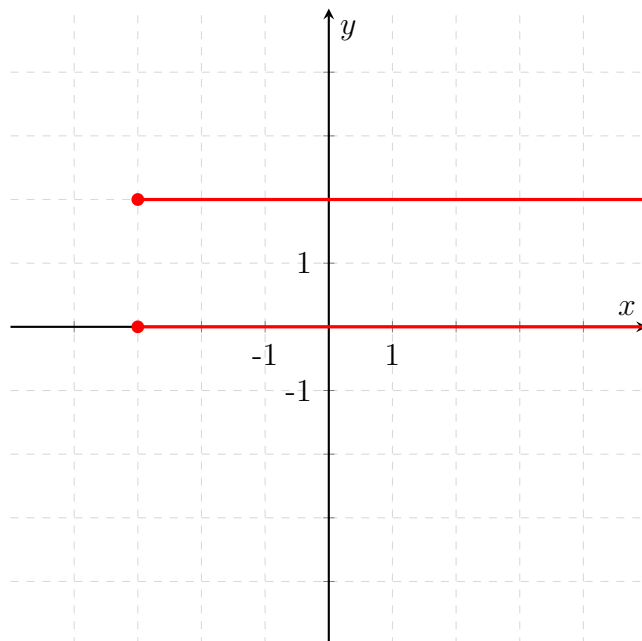
(d)



(e)



(f)

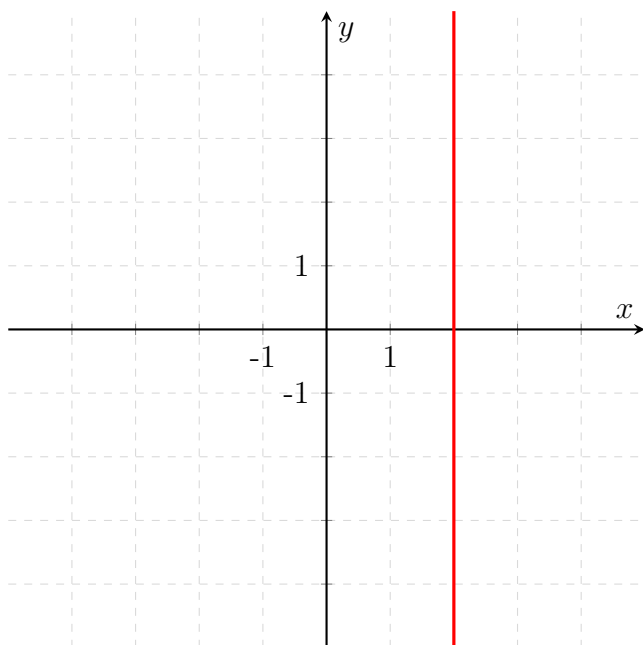


(g)

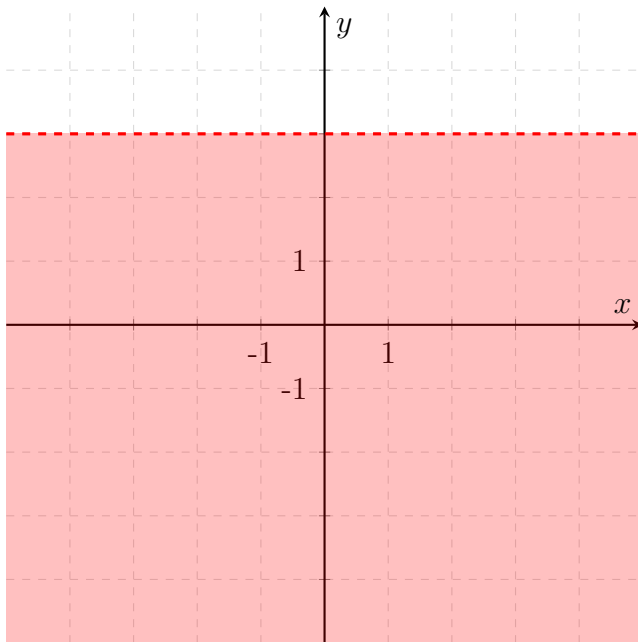
(h)

13. (a)

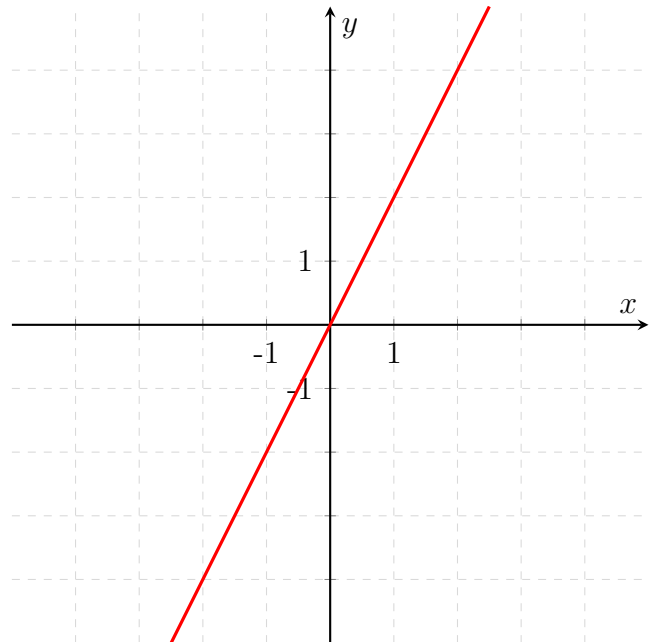
(b)



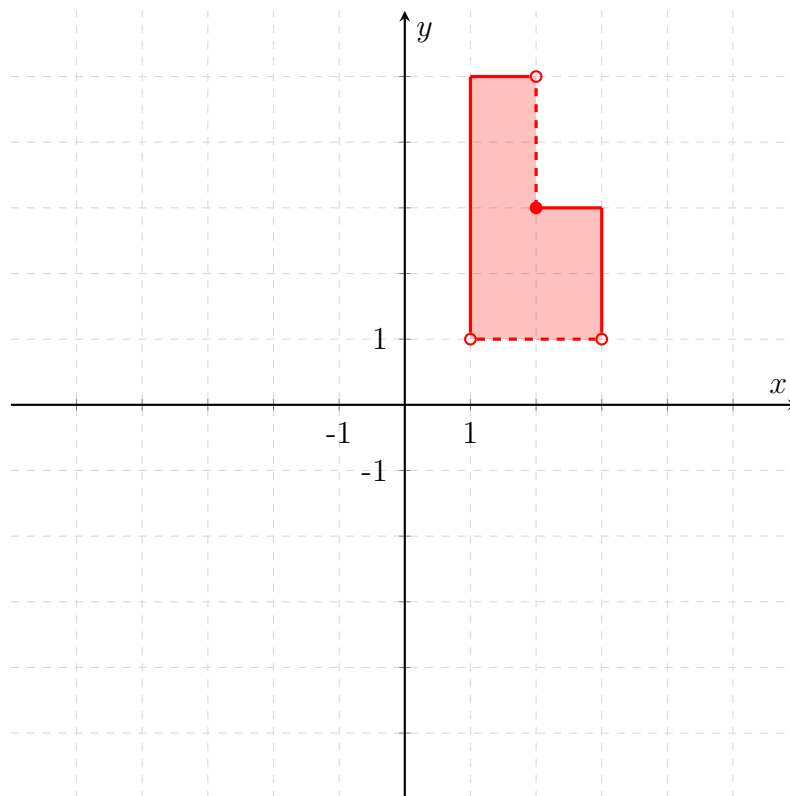
(c)



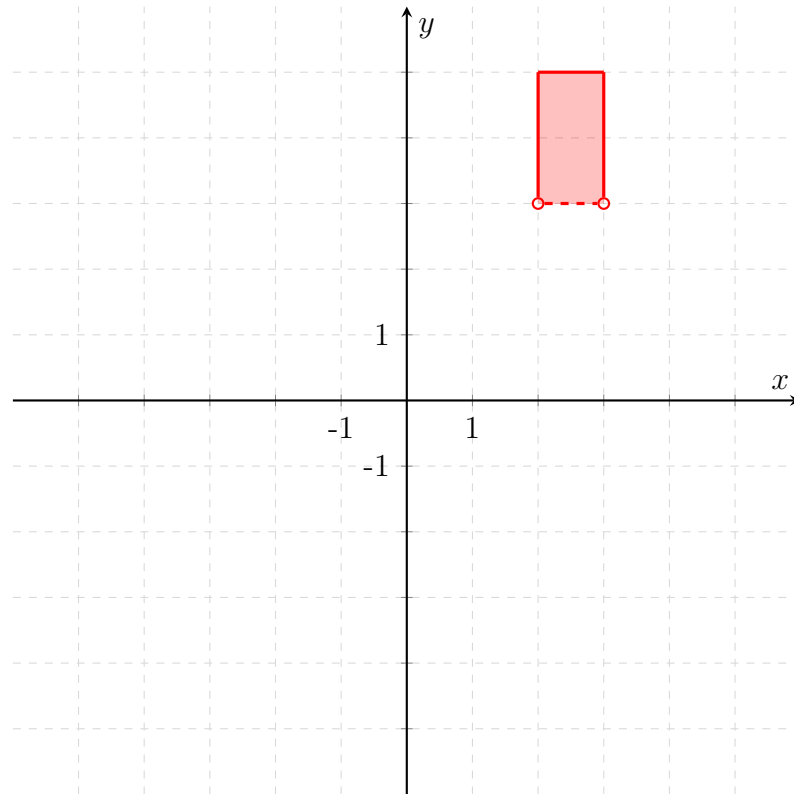
(d)



14. (a)



(b)



15. (a) 24; (b) -7 ; (c) 2; (d) -6 ; (e) 0;
(f) -30 ; (g) -4 ; (h) -4 ; (i) 2; (j) -18 ;
(k) 19; (l) 1; (m) -7 .
16. (a) 40; (b) 35; (c) 35; (d) -12 ; (e) -25 ;
(f) -56 ; (g) 0; (h) -30 ; (i) 42; (j) -40 ;
(k) 54.
17. (a) 2; (b) -2 ; (c) 2; (d) -3 ; (e) 3;
(f) 4; (g) 8; (h) 17; (i) 6; (j) 2.
18. (a) -7 ; (b) 18; (c) -1 .
19. (a) $30 = 2 \cdot 3 \cdot 5$; (b) $2250 = 2 \cdot 3^2 \cdot 5^3$;
(c) $2499 = 3 \cdot 7^2 \cdot 17$.
20. (a) 1, 2, 3, 4, 6, 12 (b) 1, 2, 5, 10, 25, 50;
(c) 1, 2, 4, 5, 10, 20, 25, 50, 100.
21. (a) $\text{mdc}(24, 60) = 12$; (b) $\text{mdc}(108, 144) = 36$;
(c) $\text{mdc}(54, 72, 75) = 3$; (d) $\text{mmc}(24, 60) = 120$;
(e) $\text{mmc}(108, 144) = 432$; (f) $\text{mmc}(54, 72, 75) = 5400$.

22. (a) $\frac{4}{6} = \frac{2}{3}$; (b) $\frac{12}{18} = \frac{2}{3}$; (c) $\frac{30}{75} = \frac{2}{5}$;
 (d) $\frac{75}{50} = \frac{3}{2}$; (e) $\frac{210}{-126} = -\frac{5}{3}$; (f) $\frac{-126}{294} = -\frac{3}{7}$.
23. (a) $\frac{6}{12}, \frac{8}{12}, \frac{9}{12}, \frac{10}{12}$; (b) $\frac{12}{12}, \frac{6}{12}, \frac{4}{12}, \frac{3}{12}$; (c) $\frac{60}{30}, \frac{20}{3}, \frac{6}{30}, \frac{25}{30}$.
24. (a) $\frac{1}{4} < \frac{1}{3} < \frac{1}{2} < \frac{2}{3}$;
 (b) $\frac{1}{6} < \frac{1}{4} < \frac{1}{3} < \frac{5}{12} < \frac{2}{3} < \frac{5}{6}$;
 (c) $\frac{3}{5} < \frac{4}{3} < \frac{3}{2} < \frac{5}{3} < 2$;
 (d) $-\frac{7}{10} < -\frac{2}{3} < -\frac{5}{8} < -\frac{3}{5} < \frac{1}{2} < \frac{3}{5} < \frac{5}{8} < \frac{2}{3} < \frac{7}{10} < \frac{3}{4} < \frac{5}{6}$.
25. (a) $\frac{3}{5}$; (b) $-\frac{2}{3}$; (c) $\frac{3}{5}$;
 (d) $\frac{17}{4}$; (e) $\frac{3}{2}$; (f) $\frac{19}{12}$;
 (g) $-\frac{23}{30}$; (h) $\frac{2}{5}$.
26. (a) $\frac{15}{28}$; (b) $\frac{8}{27}$; (c) $-\frac{2}{7}$;
 (d) $-\frac{8}{3}$; (e) -2 ; (f) $\frac{161}{216}$.
27. (a) $\frac{12}{35}$; (b) $\frac{3}{10}$; (c) $\frac{28}{45}$;
 (d) $\frac{1}{2}$; (e) $-\frac{1}{2}$; (f) $-\frac{26}{9}$.
28. (a) $0,13 = \frac{13}{100}$; (b) $0,113 = \frac{113}{1000}$; (c) $2,32 = \frac{232}{100}$;
 (d) $\frac{3}{5} = \frac{6}{10}$; (e) $\frac{5}{2} = \frac{25}{10}$; (f) $\frac{3}{4} = \frac{75}{100}$;
 (g) $\frac{1}{125} = \frac{8}{1000}$; (h) $\frac{3}{20} = \frac{15}{100}$; (i) $\frac{23}{40} = \frac{575}{1000}$.
29. (a) $0,25 = \frac{1}{4}$; (b) $2,5 = \frac{5}{2}$; (c) $1,25 = \frac{5}{4}$;
 (d) $4,04 = \frac{101}{25}$; (e) $13,04 = \frac{326}{25}$; (f) $0,136 = \frac{17}{125}$.
30. (a) $\frac{173}{100} = 1,73$; (b) $\frac{123}{10} = 12,3$; (c) $\frac{13}{10000} = 0,013$;
 (d) $\frac{7}{50} = 0,14$; (e) $\frac{13}{25} = 0,52$; (f) $\frac{21}{125} = 0,168$;
 (g) $\frac{33}{16} = 2,0625$; (h) $\frac{11}{32} = 0,35375$; (i) $\frac{17}{125} = 0,136$;
 (j) $\frac{13}{64} = 0,203125$.

31. (a) $\frac{1}{3} = 0,333\dots$; (b) $\frac{2}{3} = 0,666\dots$; (c) $\frac{5}{3} = 1,666\dots$;
 (d) $\frac{25}{11} = 2,272727\dots$; (e) $\frac{58}{33} = 1,757575\dots$; (f) $\frac{23}{18} = 1,2777\dots$
32. (a) $0,\overline{3} = 0,333\dots = \frac{1}{3}$; (b) $0,\overline{27} = \frac{3}{11}$; (c) $0,\overline{6} = \frac{2}{3}$;
 (d) $0,\overline{12} = \frac{4}{33}$; (e) $0,\overline{135} = \frac{5}{37}$; (f) $0,\overline{185} = \frac{5}{27}$.
33. (a) $0,\overline{16} = \frac{1}{6}$; (b) $0,12\overline{57} = \frac{83}{660}$; (c) $1,3\overline{5} = \frac{61}{45}$;
 (d) $1,\overline{9} = 2$; (e) $2,345\overline{99} = \frac{1173}{500}$.
34. (a) 12, 15; (b) 14, 755; (c) 24, 31;
 (d) 250; (e) 1, 705; (f) $-0,3412$;
 (g) 1, 51; (h) 106; (i) 10, 42.
35. (a) $\frac{21}{40}$; (b) $-\frac{1}{12}$.