A. Números reales

a) Aplica la jerarquía de operaciones para resolver los siguientes ejercicios:

1	$4 - \dfrac{2}{3}\left(2 - \dfrac{7}{8}\right) =$
2	$\dfrac{5}{3}(7-2) - \dfrac{5}{6}(10-8) =$
3	$\dfrac{3}{4} - \dfrac{1}{2}\left[1 - \dfrac{1}{3}\left(\dfrac{7}{12} - \dfrac{1}{8}\right)\right] =$
4	$\dfrac{(-6)(-8)(2)}{12 - 8(-5 + 3)} =$
5	$-3\{5(1-2) + 8 + [6 - 3(2+4) + 3(-3-1)]\} =$
6	$\dfrac{-2(-8) + 5(-3) + (-3)^3}{-3(-2) + 5(2)} =$
7	$3^4 - 2^2 + [2 + 5 - (-3-6) - 1] =$
8	$\dfrac{2}{3} - \left[\dfrac{1}{2} + 3\left(\dfrac{1}{3} + 2\right)\right] ==$
9	$\dfrac{\dfrac{3}{4} - \dfrac{1}{2}}{1 + \dfrac{3}{4}\left(\dfrac{1}{2}\right)} =$
10	$\dfrac{1}{4}\left[-7 + 6\left(\dfrac{1}{5} - 2\right)\right] - 3 =$
11	$-2 - \left\{3 + \dfrac{1}{3} - \left[2\dfrac{1}{2} - \dfrac{3}{2} - \left[-1 - \dfrac{3}{4}\right] + 2\dfrac{1}{3}\right] - 1\dfrac{1}{3}\right\} =$
12	$-\dfrac{1}{2} - \left\{\dfrac{1}{3} - \left[2 + \left(1 - \dfrac{3}{2}\right) + \dfrac{1}{6}\right] - \dfrac{5}{12}\right\} - \dfrac{3}{4} =$
13	$\dfrac{2}{3} - \left[\dfrac{1}{2} + 3\left(\dfrac{1}{3} + 2\right)\right] =$
14	$\dfrac{\left(2^{-1}\right)\left(\dfrac{1}{2}\right)^2 \div \dfrac{3}{2}}{\left(\sqrt{\dfrac{4}{9}} + \dfrac{1}{3}\right) \div \dfrac{2}{3}} =$

15	$$\dfrac{\left(\dfrac{3}{2}\right)^{-1}+\left(\dfrac{9}{4}\div\dfrac{5}{2}\right)}{\left(-\dfrac{3}{2}\right)^{2}-\left((5)\left(\dfrac{4}{3}\right)\right)}=$$
16	$$\dfrac{\left(\sqrt{\dfrac{16}{25}}-\dfrac{1}{4}\right)\left(-\dfrac{2}{3}\right)^{2}}{\left(\dfrac{1}{2}\right)^{-1}\div\left(-\dfrac{3}{2}+2^{3}\right)}=$$
17	$$5-\left\{-3-\left[1\dfrac{1}{4}+\left(\dfrac{1}{3}-\dfrac{1}{2}\right)+1\dfrac{2}{3}-\left(\dfrac{1}{4}+\dfrac{2}{3}\right)\right]-2\right\}-6=$$
18	$$4^{2}-\sqrt{9}+5\bullet3\div15+4=$$
19	$$-2^{3}+\sqrt{144}\div3\bullet5+8=$$
20	$$(-3)^{2}+5\bullet4+6\div3+8=$$

b) Racionaliza y simplifica los siguientes radicales:

1. $\dfrac{\sqrt{5}}{\sqrt{10}}=$

2. $\dfrac{5\sqrt{20}}{\sqrt{7}}=$

3. $\dfrac{8\sqrt{15}}{\sqrt{12}}=$

4. $\dfrac{22\sqrt{22}}{\sqrt{12}}=$

5. $\dfrac{3\sqrt{32}}{\sqrt{15}}=$

6. $\dfrac{\sqrt{24}}{\sqrt{10}}=$

7. $\dfrac{10\sqrt{45}}{\sqrt{5}}=$

8. $\dfrac{\sqrt{38}}{\sqrt{10}}=$

9. $\dfrac{\sqrt{52}}{\sqrt{3}}=$

10. $\dfrac{\sqrt{68}}{\sqrt{5}}=$

11. $\left(\dfrac{4}{\sqrt{3}}\right)\left(\dfrac{\sqrt{20}}{5}\right)=$

12. $\left(\dfrac{\sqrt{4}}{\sqrt{6}}\right)\left(\dfrac{\sqrt{7}}{\sqrt{2}}\right)=$

13. $\dfrac{\sqrt{5}}{\sqrt{3}}\div\dfrac{\sqrt{7}}{\sqrt{9}}=$

14. $\dfrac{2\sqrt{6}}{\sqrt{3}}\div\dfrac{\sqrt{8}}{\sqrt{2}}=$

15. $\dfrac{\sqrt{3}}{4}\div\dfrac{\sqrt{6}}{\sqrt{7}}=$

16. $\left(\dfrac{5}{\sqrt{3}}\right)\left(\dfrac{\sqrt{20}}{\sqrt{2}}\right)=$

17. $\left(\dfrac{\sqrt{16}}{\sqrt{3}}\right)\left(\dfrac{\sqrt{2}}{\sqrt{4}}\right)=$

18. $\left(\dfrac{\sqrt{25}}{4}\right)\left(\dfrac{\sqrt{3}}{\sqrt{2}}\right)=$

19. $\dfrac{\sqrt{20}}{\sqrt{20}}=$

20. $\dfrac{\sqrt{12}}{\sqrt{6}}\times\dfrac{\sqrt{6}}{\sqrt{16}}=$

B. Expresiones algebraicas

a) Elimine paréntesis y reduzca a términos semejantes cada una de las siguientes expresiones:

1. (9a-7- 48b) + (4a+4–20b)

2. (2a2 + 5b2) + (12a2 + 4b2)

3. (15x- 436) + (8x + 21)

4. (9ab+4) + (3ab+4)

5. (8ab + 4b) + (5ab - 4b)

6. (7.3x + 4.2y) + (5.3x + 2.2y)

7. (3.5x + 4.5y) + (5.3x + 4.2y)

8. (15xy + 6z) + (5xy + 9z)

9. 15ab-[(6ab–c) + (4ab+c)]

10. a-b2- [a2 -(2ab - b2)] - [a2 -(2ab - b2)]

11. $(ab+bc+ac)+(8ac-7bc-9)-[(4ac-3bc+5ab)+(3bc+5ac-ab)]$

12. $(2ab+bc´+ac)+(7bc+6ac-3)-[(5ac-3ba+4ab)+(3bc+2ac-2ab)]$

13. $(3ab+bc-ac)-(3bc+2ac+4)-[(ac-2bc-3ac)-(5bc-2ac-3ab)]$

14. $(x^2+3x-5)+(3x^2-3x+2)-(5x^2+4x-5)-(7x^2+6x-4)$

15. $(3x^2+2x-5)+(5x^2-2x+2)-(2x^2+4x-3)-(3x^2+4x-1)$

16. $(x^2+3x-7)-(6x^2-2x+1)+(5x^2+2x+2)-(2x^2+3x-2)$

17. $3(2x+4)-5(2x+3)-8(2x+6)-(x+7)$

18. $(2x-5)+(6x+7y-6)-(4x-8y-9)+(7x-3y+4)$

19. $6x-(5x+7y-4z+8)+(3y-6z+9)-(7x+2y-6)$

20. $3x+(2x+4y)-(x+6)+(3y-9)-(3x+4y-1)$

b) Realice las siguientes multiplicaciones de monomios y polinomios.

a) $(x^2+xy)\,(xy)$	t) $(y^2+2)\,(5—x^6y)$
b) $(a^2+b^2—2ab)\,(ab)$	u) $(x^2+xy+y^2)\,(x—y)$
c) $(a^2-b^2+2ab)\,(ab)$	v) $(am+a)\,(m^3—m^2+m—2)$
d) $(x^8—3x^2+1)\,(-3)$	w) $(3a^2—5ab+2b^2)\,(4a—5b)$
e) $(a^3—a+a^2)\,(a)$	x) $(3m—n)\,(5m^4—7m^2n^2+n^4)$
f) $(m^4+m^2n^2+n^4)\,(-m^2n^2)$	y) $(a^2+a+1)\,(a^2—a—1)$
g) $(x^8—2x^2+3x—1)\,(-3x^3y^8)$	z) $(x^3+2x^2—x)\,(x^2—2x+5)$
h) $(y^2+2)\,(5xy)$	aa) $(m^2—2mn—8n^2)\,(m^3—3m^2n+2mn^2)$
i) $(x^2+xy+y^2)\,(xy)$	bb) $(x^2+1+x)\,(x^2—x—1.)$
j) $(am)\,(m^3—m^2+m—2)$	cc) $(x^2—2x+3)\,(2—3x^2+x^4)$
k) $(3a^2—5ab+2b^2)\,(4a—5b)$	dd) $(m^3—4rn+m^2—1)\,(m^3+1)$
l) $(3m)\,(5m^4—7m^2n^2+n^4)$	ee) $(a^2—a+5.)\,(a^3—5a+2)$
m) $(x^2+xy+y^2)\,(x—y)$	ff) $(x^2—2xy)\,(xy—x^2+3y^2)$
n) $(a^2+b^2—2ab)\,(a—b)$	gg) $(n^2—2n+1)\,(n^2—1)$
o) $(a^2\pm b^2+2ab)\,(a+b)$	hh) $(a^3—3a^2b+4ab^2)\,(a^2b—2ab^2—)$
p) $(x^8—3x^2+1)\,(x+3)$	ii) $(2x+3y)\,(8x^3—9y^3+6xy^2—12x^2y)$
q) $(a^3—a+a^2)\,(a—1).$	jj) $(3x^3—a^3+2ax^2)\,(2a^2—x^2—3ax.)$
r) $m^4+m^2n^2+n^4)\,(m^2—n^2)$	
s) $(x^8—2x^2+3x—1)\,(2x+3x^3y^8)$	

c) Realice las siguientes divisiones algebraicas:

1. $\dfrac{xy^2}{xy}$ 2. $\dfrac{x^3y}{xy}$ 3. $\dfrac{x^2y^3}{xy^2}$ 4. $\dfrac{x^4y^3}{X^2y^2}$

5. $\dfrac{x^6y^4}{x^3y^2}$ 6. $\dfrac{x^3y^3}{x^2y}$ 7. $\dfrac{a^3b^2}{a^{5b}}$ 8. $\dfrac{a^2b^6}{a^2b^8}$

9. $\dfrac{9a^2b^5}{36a^6b^{10}}$ 10. $\dfrac{42a^5b^2}{70a^9c}$ 11. $\dfrac{26^{a3}b^2}{39b^5b^6}$ 12. $\dfrac{-44a^3b^2}{66a^5b^8}$

13. $\dfrac{-6a^8b^7}{18a^4b^9}$ 14. $\dfrac{32a^5b^2}{-8a^3b^6}$ 15. $\dfrac{36a^{10}b^7}{-12a^2b^8}$ 16. $\dfrac{-25a^6b^9}{-5a^{12}b^3}$

17. $\dfrac{(x + a)^2 + (x + a)}{(x + a)}$

18. $\dfrac{6(x - a)^2 + 3(x - a)}{3(x - a)}$

19. $\dfrac{(2x - a)^2 - a\,(2x - a)}{(2x - a)}$

20. $\dfrac{(x - 3a)^2 + 2a\,(x - 3a)}{(x - 3a)}$

21. $\dfrac{(x + 3a)^2 - 2a\,(x + 3a)}{(x + 3a)}$

22. $\dfrac{(2x + a)^2 - x\,(2x + a)}{(2x + a)}$

23. $\dfrac{(x + 2a)^3 + (x + 2a)^2}{(x + 2a)}$

24. $\dfrac{(2x - a)^3 - (2x - a)^2}{(2x - a)}$

25. $\dfrac{a^5 - 2a^4}{a^2} + a\,(2a + 5)$

26. $\dfrac{2a^4 - 4a^3}{2a^2} + a^2(a - 1)$

27. $\dfrac{3a^4 - 4a^3}{a^2} - 3a\,(a - 2)$

28. $\dfrac{18a^4 - 3a^3 + 6a^2}{3a^2} - 2a\,(3a - 2)$

29. $\dfrac{a^4 - 3a^3 - 2a^2}{a^2} + (a + 1)\,(a + 2)$

30. $\dfrac{6a^2 + 4a^3 - 2a^4}{2a^2} + (a - 1)(a + 3)$

31. $\dfrac{3a^4 - 6a^3 - 18a^2}{-3a^2} + (a - 2)(a - 3)$

32. $\dfrac{a^5 - a^4 + 2a^3}{a^3} - (a - 1)(a + 2)$

33. $\dfrac{a^5 - 4a^4 + 6a^3}{a^3} - (a - 2)(a + 3)$

34. $\dfrac{4a^5 - 6a^4 - 8a^3}{2a^3} - (2^a - 1)(a + 3)$

35. $\dfrac{2a^4b - 4a^3b^2 + 2a^2b^3}{2a^2b} - (a + b)^2$

36. $\dfrac{a^3b^3 - 2a^2b^4 - 15ab^5}{ab^2} - (a - b)^2$

d) Efectúe los siguientes productos notables:

1.	$(x + 3)(x + 1)$	2.	$(x + 2)(x + 4)$	3.	$(x + 6)(x + 2)$
4.	$(x + 4)(x + 3)$	5.	$(x + 5)(x - 2)$	6.	$(x + 7)(x - 3)$
7.	$(x + 3)(x - 6)$	8.	$(x + 1)(x - 8)$	9.	$(x - 1)(x + 3)$
10.	$(x - 4)(x + 6)$	11.	$(x - 7)(x + 4)$	12.	$(x - 9)(x + 2)$
13.	$(x + 1)(x - 1)$	14.	$(x + 3)(x - 3)$	15.	$(x - 6)(x + 6)$
16.	$(x - 7)(x + 7)$	17.	$(x - 1)(x - 6)$	18.	$(x - 2)(x - 4)$
19.	$(x - 3)(x - 5)$	20.	$(x - 2)(x - 8)$	21.	$(2x + 1)(x + 3)$
22.	$(3x + 2)(x + 4)$	23.	$(2x + 1)(x - 5)$	24.	$(3x + 2)(x - 6)$
25.	$(4x - 1)(x + 7)$	26.	$(5x - 2)(x + 2)$	27.	$(2x - 3)(x - 4)$
28.	$(3x - 1)(x - 6)$	29.	$(2x + 1)(3x + 2)$	30.	$(4x + 1)(6x + 5)$
31.	$(3x - 1)(3x + 4)$	32.	$(2x - 3)(3x + 5)$	33.	$(3x + 1)(4x - 1)$
34.	$(2x + 7)(2x - 3)$	35.	$(4x + 1)(2x - 9)$	36.	$(5x + 2)(3x - 5)$
37.	$(2x + 1)(2x - 1)$	38.	$(3x + 2)(3x - 2)$	39.	$(2x + 5)(2x - 5)$
40.	$(4x + 3)(4x - 1)$	41.	$(3x - 1)(4x - 3)$	42.	$(2x - 4)(3x - 2)$
43.	$(9x - 2)(4x - 1)$	44.	$(2x - 5)(3x - 7)$	45.	$(2 + x)(3 - x)$
46.	$(4 + x)(5 - x)$	47.	$(6 - x)(4 + x)$	48.	$(1 - x)(9 + x)$
49.	$(2 - x)(2 + x)$	50.	$(6 - x)(6 + x)$	51.	$(3 - x)(1 - x)$
52.	$(6 - x)(2 - x)$	53.	$(5 - x)(7 - x)$	54.	$(4 - x)(9 - x)$
55.	$(3 - 2x)(3 + 4x)$	56.	$(2 - 9x)(3 + x)$	57.	$(7 + 3x)(8 - 5x)$
58.	$(x + 3)(2 - x)$	59.	$(x + 1)(6 - x)$	60.	$(x + 4)(1 - x)$
61.	$(x + 7)(3 - x)$	62.	$(2x + 1)(3 - 2x)$	63.	$(3x + 4)(2 - 3x)$
64.	$(x + 1)^2$	65.	$(x + 3)^2$	66.	$(2x + 1)^2$
67.	$(2x + 3)^2$	68.	$(x - 2)^2$	69.	$(x - 4)^2$
70.	$(2x - 1)^2$	71.	$(3x - 2)^2$	72.	$(-2x + 2)^2$

e) Factorice las siguientes expresiones algebraicas:

1. $x^2 - 1$ 2. $x^2 - 9$ 3. $x^2 - 16$ 4. $x^2 - 36$

5. $x^2 - 49$ 6. $x^2 - 64$ 7. $x^2 - 100$ 8. $x^2 - 144$

9. $81 - x^2$ 10. $121 - x^2$ 11. $9x^2 - 1$ 12. $36x^2 - 1$

13. $64x^2 - 1$ 14. $81x^2 - 1$ 15. $4x^2 - 9$ 16. $4x^2 - 49$

17. $(x + 3)^2 - 4y^2$ 18. $(x - 2)^2 - 9y^2$ 19. $(x - 1)^2 - 16y^2$

20. $x^2 - (y + 1)^2$ 21. $4x^2 - (y + 3)^2$ 22. $9x^2 - (y + 4)^2$

23. $(x - 1)^2 - (y - 3)^2$ 24. $(3x - 1)^3 + y^2(1 - 3x)^2$ 25. $x^2 - \dfrac{1}{4}$

26. $x^2 - \dfrac{1}{9}$ 27. $x^2 - \dfrac{4}{25}$ 28. $x^2 - \dfrac{4}{9}$

29. $x^2 - \dfrac{4}{81}$ 30. $x^2 - \dfrac{16}{49}$ 31. $25x^2 - \dfrac{9}{16}$

32. $49x^2 - \dfrac{16}{49}$ 33. $x^4 - \dfrac{25}{4}$ 34. $x^4 - \dfrac{16}{81}$

35. $x^2 + 3x + 2$ 36. $x^2 + 7x + 6$ 37. $x^2 + 4x + 4$

38. $x^2 + 8x + 12$ 39. $x^2 + 7x + 12$ 40. $x^2 + 9x + 18$

41. $x^2 + 9x + 20$ 42. $x^2 + 10x + 24$ 43. $x^2 + 11x + 30$

44. $x^2 - 5x + 6$ 45. $x^2 - 7x + 10$ 46. $x^2 - 8x + 15$

47. $x^2 - 13x + 30$ 48. $x^2 - 9x + 20$ 49. $x^2 - 12x + 32$

50. $x^2 - 12x + 35$ 51. $x^2 - 13x + 42$ 52. $x^2 + 2x - 3$

53. $x^2 + 13x + 42$ 54. $x^2 + 16x + 63$ 55. $x^2 - 11x + 30$

56. $x^2 - 15x + 56$ 57. $x^2 + 6x - 40$ 58. $x^2 + x - 30$

59. $x^2 - 5x - 24$ 60. $x^2 - 6x - 72$ 61. $x^2 + 12xy + 27y^2$

73. $x^4 + 7x^2 + 12$ 74. $x^4 - 3x^2 - 10$ 75. $x^4 + 3x^2 - 18$

76. $x^4 + 3x^2 - 4$ 77. $x^4 + 7x^2 - 8$ 78. $x^4 + x^2 - 20$

79. $x^4 - 3x^2 - 4$ 80. $x^4 - 4x^2 + 3$ 81. $x^4 - 7x^2 + 6$

82. $(x + y)^2 + 3(x + y) + 2$ 83. $(x + y)^2 + 4(x + y) + 3$ 84. $(x + 3y)^2 - 9(x + 3y) + 18$

85. $(x - 2y)^2 - 12(x - 2y) + 32$ 86. $(x + y)^2 + (x + y) - 2$ 87. $(x - y)^2 + (x - y) - 12$

88. $(x + 2y)^2 + (x + 2y) - 6$ 89. $(2x + y)^2 + 6(2x + y) - 16$ 90. $(2x + y)^2 - (2x - y) - 20$

91. $2x^2 + 3x + 1$ 92. $2x^2 + 9x + 4$ 93. $3x^2 + 7x + 2$

94. $4x^2 + 13x + 3$

95. $2x^2 + 7x + 6$

96. $2x^2 + 13x + 15$

97. $3x^2 + 14x + 8$

98. $4x^2 + 11x + 6$

99. $4x^2 + 4x + 1$

100. $6x^2 - 7x - 3$

101. $8x^2 - 10x - 3$

102. $4x^2 + 8x + 5$

103. $6x^2 + 11x - 4$

104. $9x^2 - 6x + 8$

105. $12x^2 - 17x - 6$

106. $6x^2 + 17x + 12$

107. $6x^2 + 31x + 18$

108. $6x^2 - 13x + 6$

109. $3b - 6x$

110. $144y^2 - 256$

111. $14mp + 14mq - 9np - 9nq$

112. $16x - 12$

113. $ap + aq + bm + bn$

114. $20abc - 30abd - 60b^2c + 90b^2d$

115. $14c - 21d - 30$

116. $15 + 5x + 3b + xb$

117. $25a - 30ab + 15ab^2$

118. $28pq^3x + 20p^2qx^2 - 44p^3qx + 4pqx$

119. $5x - 5$

120. $144 - 9x^2$

121. $175ax + 75ay - 25bx - 15by$

122. $6x - 12y + 18$

123. $xy - x + 3z - 6$

124. $4g^2 + 2gh$

125. $152x^2yz - 114xyz^2$

126. $ab + a - b - 1$

f) Simplifique las siguientes expresiones, aplicando los criterios de factorización.

a) $\dfrac{48a}{72ab} =$ b) $\dfrac{25a^2b}{75ab^2} =$ c) $\dfrac{96m^3n^2}{32m^4n^3} =$ d) $\dfrac{3(a+b)}{5(a+b)} =$

e) $\dfrac{4a+4b}{5a+5b} =$ f) $\dfrac{3x-6y}{5x-10y} =$ g) $\dfrac{x^2+xy}{xy+y^2} =$ h) $\dfrac{8x+7y}{64x^2-49y^2} =$

i) $\dfrac{24x-18y}{44x-33y} =$ j) $\dfrac{x^2-16}{x^2+8x+16} =$ k) $\dfrac{9x^2+30x+25}{6x+10} =$ l) $\dfrac{x^2-25}{x^2+x-20} =$

m) $\dfrac{4y^2-4y+1}{6x-3} =$ n) $\dfrac{x^2+6x+8}{x^2+7x+12} =$ ñ) $\dfrac{x^2+4x-12}{x^2+8x+12} =$ o) $\dfrac{64-u^2}{u^2-13u+40} =$

p) $\dfrac{(a-b)^2-c^2}{a^2-(b-c)^2} =$ q) $\dfrac{1-64c^6}{1-4c^2} =$ r) $\dfrac{x^2+7x+10}{x^2-25} =$ s) $\dfrac{x^2-x-2}{x^2+3x+2} =$

y) $\dfrac{\frac{b}{a}-\frac{a}{b}}{\frac{1}{b}-\frac{1}{a}} =$ z) $\dfrac{1+\frac{1}{a-1}}{1-\frac{1}{a+1}} =$ z') $\dfrac{\frac{x+y}{x-y}-\frac{x-y}{x+y}}{\frac{x+y}{x}-\frac{x+2y}{x+y}} =$

g) Simplifique las siguientes expresiones:

a) $\dfrac{-1}{\sqrt{2}+\sqrt{3}}$ c) $\dfrac{2}{\sqrt{7}-\sqrt{5}}$ e) $\dfrac{3}{2+\sqrt{10}}$

b) $\dfrac{7+4x}{2\sqrt{x+2}-1}$ d) $\dfrac{9y-4x^2}{2x+3\sqrt{y}}$ f) $\dfrac{3}{\sqrt{x}-\sqrt{x+1}}$

h) Resuelva las siguientes ecuaciones de primer grado:

1. 5 + 6x = 2

2. 4b + 1 = -18

3. 18c - 3 = 0

4. 10 - 4x = 7 - 6x

5. 5m - 3,2 = 2m + 2,8

6. 5n - 2n + 12 = 35 - 4n - 9

7. 3 - (8v-5) + (6-7v) - 1 = 7 - (v-1) + (4v+4)

8. (3w - 8) - (4 - 9w) + 3 = 7w - 2 - (5w + 9 - 3)

9. -(4x-6+5x) + (9-5x+3-2x) = 7x - (1 - 6x)

10. $\frac{8x-7}{9} + \frac{3x-4}{5} - 2 = x - \frac{3x-2}{4}$

11. $\frac{9y-8}{7} + 2 = \frac{5(8-3y)}{3} + 4$

12. $\frac{9u-9}{10} + 1 = u - \frac{3u-5}{2} + \frac{1}{4}$

13. $\frac{3}{4}\left(\frac{5-2w}{3}\right) + 4 = \frac{1}{2}\left(\frac{8-w}{3}\right)$

14. $\frac{8(3x-4)}{2} + 1 - \frac{2}{3}\left(\frac{5x-4}{3}\right) = x$

15. $\frac{7z-3}{2} + \frac{8-5z}{3} + \frac{9z-3}{4} - \frac{5z-7}{6} = 1$

16. $\frac{3k-4}{2} - \frac{5k-4}{3} + 1 = k - \frac{2}{3}$

17. $\frac{3y-4}{6} + \frac{8y-2}{3} + 1 = 5(3y - 4) - 2$

18. $\frac{8-2x}{3} + \frac{5-2x}{7} + 4 = 5 - (8x - 6) + \frac{1}{2}$

19. $\frac{7j-3}{4} + \frac{5(2j-4)}{3} = 1 - \frac{2j-5}{7}$

20. $\frac{7c-4}{10} - \frac{2c-9}{5} + 2 = \frac{3c-4}{3} + 1$

i) Resuelva los siguientes sistemas de ecuaciones por medio de los métodos de sustitución, igualación y graficación:

1. x = 1
   x + y = 2

2. x = 2
   x + 3y = 5

3. y = −1
   3x + y = 2

4. y = −1
   2x − y = 7

5. x + y = 3
   2x + y = 4

6. x + y = 4
   x + 2y = 7

7. x − y = 3
   x + y = 1

8. x + 2y = 5
   2x − y = −5

9. x − 3y = 4
   2x − 3y = 2

10. x + y = 0
    2x + y = 4

11. x − 2y = 0
    2x − y = 6

12. 2x + y = 0
    3x − 2y = 7

13. x + 3y = −2
    3x + 5y = −6

14. 2x − 3y = 12
    4x + 5y = −20

15. 2x − 7y = −26
    5x + y = 9

16. 7x − 6y = 17
    3x + y = 18

17. 5x + 2y = 3
    7x − 3y = 10

18. 2x + 5y = −1
    3x − 2y = 27

19. $4x + 3y = 6$
    $3x - 5y = 19$

20. $6x - 7y = 10$
    $8x - 13y = 6$

21. $3x + y = 1$
    $x + 2y = 3$

22. $3x - y = -1$
    $7x + y = 6$

23. $5x + y = -1$
    $11x + 4y = -1$

24. $2x - y = 2$
    $6x - 7y = 8$

j) Resuelva para x las siguientes ecuaciones:

1. $x^2 - 6x + 8 = 0$
2. $x^2 + 2x - 15 = 0$
3. $x^2 - 5x = 36$
4. $x^2 + 10x = 24$
5. $x^2 - 9x = -18$
6. $x^2 + 4x + 4 = 0$
7. $x^2 + 6x + 9 = 0$
8. $x^2 - 8x + 16 = 0$
9. $x^2 - 10x + 25 = 0$
10. $x^2 - 2x + 1 = 0$
11. $x^2 - 4x + 4 = 0$
12. $3x^2 - 3x = 18$
13. $2x^2 - 6x - 8 = 0$
14. $4x^2 - 4x - 8 = 0$
15. $3x^2 - 12x + 9 = 10$
16. $2x^2 - 3x - 2 = 0$
17. $3x^2 - 5x = -2$
18. $4x^2 - 3x = 1$
19. $4x^2 + 4x = 3$
20. $3x^2 + 8x = 3$