Lesson 5 - Practice test for Final Exam

Conclusions

In this last lesson we will take a test. The test should be viewed as a study aid. It's not a list of questions that might appear on the final exam. Use the test to diagnose trouble spots and topics that require further study with the help of your instructor. In this way you will be ready for the *Final Exam*.

Exercise 1 *Which of the following is an impossible equation?*

- A $x = 5x - 4x$
- B $x^2 - 4 = (x + 2)(x - 2)$
- C $2x + 4 = 2x$
- D $2x^2 = 0$
- E $(x - 1)^2 = x^2 - 2x + 1$

Exercise 2 *Consider the equation* $(x - 1)^2 = 4x + 1$. *Which of the following sentences are true?*

- A *the equation has degree 1*
- B *its only solution is 0*
- C *it is a numeric equation*
- D *it is an undetermined equation*
- E *it is an impossible equation*

Exercise 3 *One and only one of the following equations is not equivalent to* $x = -2$. *Which one?*

- A $x + 1 = 2x + 3$
- B $-x = 2$
- C $2x + 1 = -3$
- D $2x + 3 = 0$
- E $3(x + 2) = 2(x + 2)$

Exercise 4 *Which of the following numbers is a solution of the equation*

$$\left(x - \frac{3}{2}\right)\left(x + \frac{3}{2}\right) - 3x^2 = \frac{3}{4}x - 1 - 2\left(x + \frac{1}{2}\right)^2$$

- A $\frac{3}{2}$
- B 0
- C 1
- D $\frac{3}{5}$
- E -3

Exercise 5 *Which of the following are the existence conditions of the equation*

$$\frac{3x-1}{3x} - \frac{x}{x+2} = \frac{4}{x^2-1}$$

A	$x \neq 0 \wedge x \neq -2$
B	$x \neq 0 \wedge x \neq -2 \wedge x \neq 1$
C	$x \neq 0 \wedge x^2 - 1 \neq 0$
D	$x \neq -2 \wedge x \neq -3$
E	*none of the preceding*

Exercise 6 *Consider the equation*

$$2b + ax = ax + b + 2x$$

Which of the following sentences are true?

A	*it is determined only for* $a \neq 0$
B	*it is determined only for* $b \neq 0$
C	*it is determined for every value of* a *and* b
D	*it is always impossible*
E	*it is never determined*

Exercise 7 *Consider the equation*

$$(5a-3)x = b - 1$$

Which of the following sentences is false?

A	*if* $a \neq 3 \wedge b \neq 1$ *the equation is determined*
B	*if* $a = \frac{3}{5} \wedge b \neq 1$ *the equation is impossible*
C	*if* $a = 5 \wedge b = 2$ *the equation is determined*
D	*if* $a = 3 \wedge b \neq 1$ *the equation is determined*
E	*if* $a = \frac{3}{5} \wedge b = 1$ *the equation is undetermined*

Exercise 8 *Consider the equation*

$$2ax + 5 = 4x - a$$

. For which value of a *the equation is impossible?*

A	-1
B	0
C	1
D	2
E	*for no value of* a

Exercise 9 *Consider the equation*

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

. Which of the following sentences are true?

- A *it is a second degree equation*
- B *it is not in normal form*
- C *it is not undetermined*
- D *it is impossible*
- E *it has 0 as one of its solutions*

Exercise 10 *One and only one of the following equations admits no solutions in* $\mathbb{Z}$*. Which one?*

- A $3x = -6$
- B $-12x + 4 = -8$
- C $-\frac{3}{8}x = \frac{9}{4}$
- D $3x = 0$
- E $-\frac{3}{8}x = 11$

Exercise 11 *Solve the following fractional equation*

$$\frac{x-1}{x^2+4x+4} + \frac{1}{2+x} = \frac{5}{4x+8}$$

Exercise 12 *Discuss and solve the literal equation*

$$a^3x - a^2 = 4ax - 4$$

Exercise 13 *If you multiply a number by its successor you obtain the square of its predecessor plus 26. What is that number?*

Exercise 14 *The sum of Eric's age and Lucas's age is 65. Two times Eric's age is the same as three times Lucas's age. Find the ages of the men.*