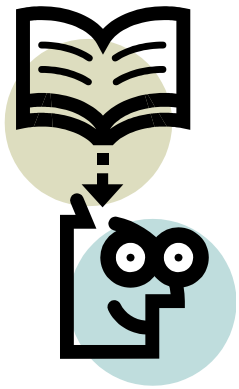
# *College Placement Test*



# STUDY GUIDE

***Accuplacer Study Guide***

## Sample Questions

Reading Comprehension
Sentence Skills
Elementary Algebra

# Reading Comprehension

In an ACCUPLACER placement test, there are 20 questions of two primary types in Reading Comprehension.

- The first type of question consists of a reading passage followed by a question based on the text. Both short and long passages are provided. The reading passages can also be classified according to the kind of information processing required, including explicit statements related to the main idea, explicit statements related to a secondary idea, application, and inference.
- The second type of question, sentence relationships, presents two sentences followed by a question about the relationship between these two sentences. The question may ask, for example, if the statement in the second sentence supports that in the first, if it contradicts it, or if it repeats the same information.

*Question 1: Narrative*

Read the statement or passage and then choose the best answer to the question. Answer the question on the basis of what is stated or implied in the statement or passage.

There are two types of pottery that I do. There is production pottery-mugs, tableware, the kinds of things that really sell easily. These pay for my time to do the other work, which is more creative and satisfies my needs as an artist.

The author of the passage implies that:

A. artists have a tendency to waste valuable time
B. creativity and mass-production are incompatible
C. most people do not appreciate good art
D. pottery is not produced by creative artists

*Question 2: Sentence Relationships*

Two bold sentences are followed by a question or statement about them. Read each pair of sentences and then choose the best answer to the question or the best completion of the statement.

**The Midwest is experiencing its worst drought in fifteen years.**

**Corn and soybean prices are expected to be very high this year.**

What does the second sentence do?

A. It restates the idea found in the first.
B. It states an effect.
C. It gives an example.
D. It analyzes the statement made in the first.

*Directions for questions 3-8*

Read the statement or passage and then choose the best answer to the question. Answer the question based on what is stated or implied in the statement or passage.

*Question 3:*

In the words of Thomas DeQuincey, "It is notorious that the memory strengthens as you lay burdens upon it." If, like most people, you have trouble recalling the names of those you have just met, try this: The next time you are introduced, plan to remember the names. Say to yourself, "I'll listen carefully; I'll repeat each person's name to be sure I've got it, and I will remember." You'll discover how effective this technique is and probably recall those names for the rest of your life.

**The main idea of the paragraph maintains that the memory**

A. always operates at peak efficiency.
B. breaks down under great strain.
C. improves if it is used often.
D. becomes unreliable if it tires.

*Question 4:*

Unemployment was the overriding fact of life when Franklin D. Roosevelt became president of the United States on March 4, 1933. An anomaly of the time was that the government did not systematically collect statistics of joblessness; actually it did not start doing so until 1940. The Bureau of Labor Statistics later estimated that 12,830,000 persons were out of work in 1933, about one-fourth of a civilian labor force of more than 51 million.
Roosevelt signed the Federal Emergency Relief Act on May 12, 1933. The president selected Harry L. Hopkins, who headed the New York relief program, to run FERA. A gifted administrator, Hopkins quickly put the program into high gear. He gathered a small staff in Washington and brought the state relief organizations into the FERA system. While the agency tried to provide all the necessities, food came first. City dwellers usually got an allowance for fuel, and rent for one month was provided in case of eviction.

This passage is primarily about

A. unemployment in the 1930s.
B. the effect of unemployment on United States families.

C. President Franklin D. Roosevelt's presidency.
D. President Roosevelt's FERA program.

*Question 5:*

It is said that a smile is universally understood. And nothing triggers a smile more universally than a taste of sugar. Nearly everyone loves sugar. Infant studies indicate that humans are born with an innate love of sweets. Based on statistics, a lot of people in Great Britain must be smiling because on average, every man, woman, and child in that country consumes 95 pounds of sugar each year.

From this passage it seems safe to conclude that the English

A. do not know that too much sugar is unhealthy.
B. eat desserts at every meal.
C. are fonder of sweets than most people.
D. have more cavities than any other people.

*Question 6:*

With varying success, many women around the world today struggle for equal rights. Historically, women have achieved greater equality with men during periods of social adversity. The following factors initiated the greatest number of improvements for women: violent revolution, world war, and the rigors of pioneering in an undeveloped land. In all three cases, the essential element that improved the status of women was a shortage of men, which required women to perform many of society's vital tasks.

We can conclude from the information in this passage that

A. women today are highly successful in winning equal rights.
B. only pioneer women have been considered equal to men.
C. historically, women have only achieved equality through force.
D. historically, the principle of equality alone has not been enough to secure women equal rights.

*Question 7:*

In 1848, Charles Burton of New York City made the first baby carriage, but people strongly objected to the vehicles because they said the carriage operators hit too many pedestrians. Still convinced that he had a good idea, Burton opened a factory in England. He obtained orders for the baby carriages from Queen Isabella II of Spain, Queen Victoria of England, and the Pasha of Egypt. The United States had to wait another 10 years before it got a carriage factory, and only 75 carriages were sold in the first year.

Even after the success of baby carriages in England,

A. Charles Burton was a poor man.
B. Americans were still reluctant to buy baby carriages.
C. Americans purchased thousands of baby carriages.
D. the United States bought more carriages than any other country.

*Question 8:*

All water molecules form six-sided structures as they freeze and become snow crystals. The shape of the crystal is determined by temperature, vapor, and wind conditions in the upper atmosphere. Snow crystals are always symmetrical because these conditions affect all six sides simultaneously.

The purpose of the passage is to present

A. a personal observation.
B. a solution to a problem.
C. actual information.
D. opposing scientific theories.

**Directions for questions 9-12**
*For the questions that follow, two underlined sentences are followed by a question or statement. Read the sentences, then choose the best answer to the question or the best completion of the statement.*

*Question 9:*
The Midwest is experiencing its worst drought in 15 years.
Corn and soybean prices are expected to be very high this year.

What does the second sentence do?

A. It restates the idea found in the first.
B. It states an effect.
C. It gives an example.
D. It analyzes the statement made in the first.

*Question 10:*
Social studies classes focus on the complexity of our social environment.
The subject combines the study of history and the social sciences and promotes skills in citizenship.

What does the second sentence do?

A. It expands on the first sentence.
B. It makes a contrast.
C. It proposes a solution.
D. It states an effect.

*Question 11:*
Knowledge of another language fosters greater awareness of cultural diversity among the peoples of the world.
Individuals who have foreign language skills can appreciate more readily other peoples' values and ways of life.

How are the two sentences related?

A. They contradict each other.
B. They present problems and solutions.
C. They establish a contrast.
D. They repeat the same idea.

*Question 12:*

Serving on a jury is an important obligation of citizenship.
Many companies allow their employees paid leaves of absence to serve on juries.

What does the second sentence do?

A. It reinforces what is stated in the first.
B. It explains what is stated in the first.
C. It expands on the first.
D. It draws a conclusion about what is stated in the first.

## Sentence Skills

In an ACCUPLACER® placement test, there are 20 Sentence Skills questions of two types.

• The first type is sentence correction questions that require an understanding of sentence structure. These questions ask you to choose the most appropriate word or phrase for the underlined portion of the sentence.
• The second type is construction shift questions. These questions ask that a sentence be rewritten according to the criteria shown while maintaining essentially the same meaning as the original sentence.

Within these two primary categories, the questions are also classified according to the skills being tested. Some questions deal with the logic of the sentence, others with whether or not the answer is a complete sentence, and still others with the relationship between coordination and subordination.

*Question 1: Sentence Correction*
Select the best version of the bold part of the sentence. The first choice is the same as the original sentence. If you think the original sentence is best, choose the first answer.

Ms. Rose **planning** to teach a course in biology next summer.

A. planning
B. are planning
C. with a plan
D. plans

*Question 2: Sentence Correction*

The baby was obviously getting too **hot, then Sam did** what he could to cool her.

A. hot, then Sam did
B. hot, Sam did
C. hot; Sam, therefore did
D. hot; Sam, trying to do

*Question 3: Sentence Correction*

She hoped to find a new **job. One that** would let her earn money during the school year.

A. job. One that
B. job. The kind that
C. job, one that
D. job, so that it

*Question 4: Sentence Correction*

**Knocked sideways**, **the statue looked** as if it would fall.

A. Knocked sideways, the statue looked
B. The statue was knocked sideways, looked
C. The statue looked knocked sideways
D. The statue, looking knocked sideways,

*Question 5: Sentence Correction*

**To walk, biking , and driving** are Pat's favorite ways of getting around.

A. To walk, biking, and driving
B. Walking, biking and driving
C. To walk, biking, and to drive
D. To walk, to bike, and also driving

*Question 6: Sentence Correction*

**When you cross the street in the middle of the block, this** is an example of jaywalking.

A. When you cross the street in the middle of the block, this
B. You cross the street in the middle of the block, this
C. Crossing the street in the middle of the block
D. The fact that you cross the street in the middle of the block

*Question 7: Sentence Correction*

Walking by the corner the other day, **a child, I noticed, was watching** for the light to change.

A. a child, I noticed, was
B. I noticed a child watching
C. A child was watching, I noticed
D. there was, I noticed, a child watching

*Question 8: Construction Shift*
Rewrite the sentence in your head, following the directions given below. Keep in mind that your new sentence should be well written and should have essentially the same meaning as the sentence given you.

Being a female jockey, she was often interviewed.
Rewrite, beginning with
She was often interviewed….

The next words will be

A. on account of she was
B. by her being
C. because she was
D. being as she was

*Question 9: Construction Shift*
In his songs, Gordon Lightfoot makes melody and lyrics intricately intertwine.
Rewrite, beginning with
Melody and lyrics….

Your new sentence will include
A. Gordon Lightfoot has
B. make Gordon Lightfoot's
C. in Gordon Lightfoot's
D. does Gordon Lightfoot

*Question 10: Construction Shift*
It is easy to carry solid objects without spilling the, but the same cannot be said of liquids.
Rewrite, beginning with
Unlike liquids, ……

The next words will be
A. it is easy to
B. we can easily
C. solid objects can easily be
D. solid objects are easy to be

*Question 11: Construction Shift*
Excited children ran toward the loud music, and they told others about the ice cream truck outside.
Rewrite, beginning with
The excited children, who had run toward the loud…..

The next words will be
A. music, they told
B. music told
C. music, telling
D. music and had told

*Question 12: Construction Shift*
If he had enough strength, Todd would move the boulder.
Rewrite, beginning with
Todd cannot move the boulder…

The next words will be
A. when lacking
B. because he
C. although there
D. without enough

*Question 13: Construction Shift*
The band began to play, and then the real party started.
Rewrite, beginning with
The real party started…

The next words will be
A. after the band began
B. and the band began
C. although the band began
D. the band beginning

*Question 14: Construction Shift*
Chris heard no unusual noises when he listened in the park.
Rewrite, beginning with
Listening in the park,…..

The next words will be
A. no unusual noises could be heard
B. then Chris heard no unusual noises
C. and hearing no unusual noises
D. Chris heard no unusual noises

## *Answers*

Reading Comprehension

1. B
2. B
3. C
4. D
5. C
6. D
7. B
8. C
9. B
10. A
11. D
12. A

Sentence Skills

1. D
2. C
3. C
4. A
5. B
6. C
7. B
8. C
9. C
10. C
11. B
12. B
13. A
14. D

# Algebra Practice Test

A total of 12 questions of three types are administered in this test.

• The first type involves operations with integers and rational numbers, and includes computation with integers and negative rationales, the use of absolute values, and ordering.

• The second type involves operations with algebraic expressions using evaluation of simple formulas and expressions, and adding and subtracting monomials and polynomials. Questions involve multiplying and dividing monomials and polynomials, the evaluation of positive rational roots and exponents, simplifying algebraic fractions, and factoring.

• The third type of question involves translating written phrases into algebraic expressions and solving equations, inequalities, word problems, linear equations and inequalities, quadratic equations (by factoring), and verbal problems presented in an algebraic context.

Sample Questions for Elementary Algebra:

Simplify.

1. $\frac{3x}{x + x^2}$

2. $\frac{-12}{15}$

3. $\frac{x^6}{x^3}$

4. $\frac{-10a^5}{-5a}$

Evaluate for x= -3, and y= -2 :

5. $|3x - 4y|$

6. $|x + y| - 2(x - y)$

7. $5xy^2 - (xy)^2$

8. $(x + y)^2$

Perform the indicated operations and simplify as completely as possible.

9. $3x + 5y + 6 - 2x + 6y - 3$

10. $4(x - y) - 3(x + y)$

11. $\frac{3}{10z} + \frac{7}{4z}$

12. $\frac{4a - 3}{6a} - \frac{2a - 3}{6a}$

13. $(3x + 2y)^2$

14. $(x + 2)(x - 5)$

15. $2 + \frac{1}{x}$

16. $\frac{4x}{15} \cdot \frac{5x}{12}$

17. $\frac{4x}{15} \; / \; \frac{5x}{12}$

Solve each of the following equations or inequalities.

18. $6 - 4x = 11 - x$

19. $8 - 3(5 + x) \geq 14$

20. $\frac{t}{4} - \frac{t}{6} = 4$

21. $\frac{2x - 1}{3} - \frac{x - 5}{5} = 3$

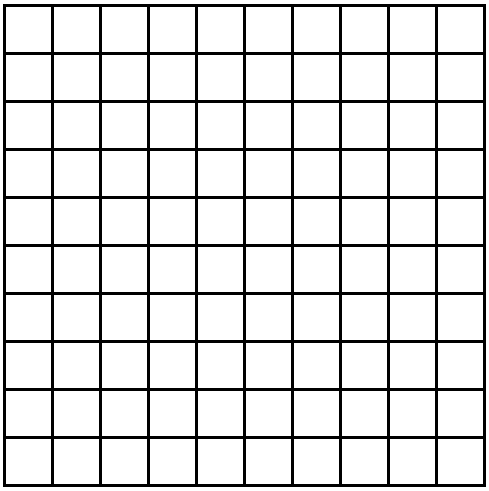
22. $(x - 3)(x - 6) = -2$

23. $(x + 4)^2 = x + 10$

24. $3 + \frac{2}{x} = 5$

25. $\frac{5x - 2}{6} - \frac{x - 2}{4} = \frac{5}{2}$

26. Sketch the graph of the following equation: $y = 3x - 2$



27. The length of a rectangle is 3 less than twice its width. If the area of the rectangle is 65 sq. in., find the dimensions of the rectangle.

28. Lou bought 2 stuffed animals and 5 games for a total of $36. Alex bought 3 stuffed animals and 2 games for a total of $32. What was the price of a single stuffed animal and a single game?

29. How many ounces each of a 40% and a 30% alcohol solution need to be mixed together to produce 60 ounces of a 34% alcohol solution?

30. 300 rolls of film were purchased for $1150. Some of the rolls were regular film costing $3 per roll, and the rest were movie film costing $5 per roll. How many of each type were bought?

*Solve the following problems and select your answer from the choices given. You may use the paper you have been given for scratch paper.*

31. If A represents the number of apples purchased at 15 cents each, and B represents the number of bananas purchased at 10 cents each, which of the following represents the total value of the purchases in cents?
A. A + B
B. 25(A + B)
C. 10A + 15B
D. 15A + 10B

32. $\sqrt{2} \times \sqrt{15} = ?$
A. 17
B. 30
C. $\sqrt{30}$
D. $\sqrt{17}$

33. What is the value of the expression $2x2 + 3xy - 4y2$ when $x = 2$ and $y = -4$?
A. -80
B. 80
C. -32
D. 32

34. In the figure below, both circles have the same center, and the radius of the larger circle is *R*. If the radius of the smaller circle is 3 units less than *R*, which of the following represents the area of the shaded region?
A. $\pi R2$
B. $\pi(R - 3)2$
C. $\pi R2 - \pi \times 32$
D. $\pi R2 - \pi(R - 3)2$

35. $(3x - 2y)2 =$
A. $9x2 - 4y2$
B. $9x2 + 4y2$
C. $9x2 + 4y2 - 6xy$
D. $9x2 + 4y2 - 12xy$

36. If $x > 2$, then $x2 - x - 6x2 - 4 =$
A. $x - 32$
B. $x - 3x - 2$
C. $x - 3x + 2$
D. 32

37. $4 – (-6)-5 =$
A. 25
B. – 25
C. 2
D. – 2

38. If $2x – 3(x + 4) = - 5$, then $x =$
A. 7
B. - 7
C. 17
D. - 17

39. $– 3(5 – 6) – 4(2 – 3) =$
A. - 7
B. 7
C. - 1
D. 1

40. Which of the following expressions is equivalent to $20 – 45x \geq 16$?
A. $x \leq 5$
B. $x \geq 5$
C. $x \geq 32½$
D. $x \leq 32½$

**Answers to Algebra Sample Questions**

Simplify.

1. $\frac{3x}{x + x^2}$ *Factor.*

$= \frac{3x}{x(1 + x)}$ *Reduce.*

$= \frac{3}{(1 + x)}$ *Ans.*

2. $\frac{-12}{15}$ *Factor.*

$= \frac{(3)(-4)}{(3)(5)}$ *Reduce.*

$= \frac{-4}{5}$ *Ans.*

3. $\frac{x^6}{x^3}$ *Factor.*

$= \frac{x^3x^3}{x^3}$ *Reduce.*

$= x^3$ *Ans.*

4. $\frac{-10a^5}{-5a}$ *Factor.*

$= \frac{(-5)(2)a \cdot a^4}{-5a}$ *Reduce.*

$= 2a^4$ *Ans.*

Evaluate for x= -3, and y= -2 :

5. $|3x - 4y|$ *Substitute.*

$= |3(-3) - 4(-2)|$ *Multiply.*

$= |-9 + 8|$ *Add.*

$= |-1|$ *Apply abs. value.*

$= 1$ *Ans.*

6. $|x + y| - 2(x - y)$ *Substitute.*

$= |(-3) + (-2)| - 2(-3+(+2))$ *Add and multiply.*

$= |-5| -2(-1)$ *Apply abs. value.*

$= 5 + 2$ *Add.*

$= 7$ *Ans.*

7. $5xy^2 - (xy)^2$ *Substitute.*

$= 5(-3)(-2)^2 - [(-3)(-2)]^2$ *Square and multiply.*

$= 5(-3)(4) - (6)^2$ *Multiply and square.*

$= -60 - 36$ *Subtract.*

$= -96$ *Ans.*

8. $(x + y)^2$ *Substitute.*
$= [(-3) + (-2)]^2$ *Add.*
$= (-5)^2$ *Square.*
$= 25$ *Ans.*

Perform the indicated operations and simplify as completely as possible.

9. $3x + 5y + 6 - 2x + 6y - 3$ *Combine like terms.*
$= x + 11y + 3$ *Ans.*

10. $4(x - y) - 3(x + y)$ *Multiply using distributive property.*
$= 4x - 4y - 3x - 3y$ *Combine like terms.*
$= x - 7y$ *Ans.*

11. $\frac{3}{10z} + \frac{7}{4z}$ *Factor denominators.*
$= \frac{3}{2 \cdot 5 \cdot z} + \frac{7}{2 \cdot 2 \cdot z}$ *Find Lowest Common Denominator. (5·2·2·z = 20z)*
$= \frac{3}{2 \cdot 5 \cdot z}\frac{(2)}{(2)} + \frac{7}{2 \cdot 2 \cdot z}\frac{(5)}{(5)}$ *Build fractions to get LCD.*
$= \frac{6}{20z} + \frac{35}{20z}$ *Add.*
$= \frac{41}{20z}$ *Ans.*

12. $\frac{4a - 3}{6a} - \frac{2a - 3}{6a}$ *Combine fractions using distributive property.*
$= \frac{4a - 3 - 2a + 3}{6a}$ *Combine like terms.*
$= \frac{2a}{6a}$ *Reduce.*
$= \frac{1}{3}$ *Ans.*

13. $(3x + 2y)^2$
$= (3x + 2y)(3x + 2y)$ *Apply FOIL method.*
$= 9x^2 + 6xy + 6xy + 4y^2$ *Combine like terms.*
$= 9x^2 + 12xy + 4y^2$ *Ans.*

14. $(x + 2)(x - 5)$ — *Apply FOIL method.*

$= x^2 + 2x - 5x - 10$ — *Combine like terms.*

$= x^2 - 3x - 10$ — *Ans.*

15. $2 + \frac{1}{x}$ — *Build fraction to get LCD.*

$= \frac{2}{1}\frac{(x)}{(x)} + \frac{1}{x}$ — *Multiply.*

$= \frac{2x}{x} + \frac{1}{x}$ — *Add.*

$= \frac{2x + 1}{x}$ — *Ans.*

16. $\frac{4x}{15} \cdot \frac{5x}{12}$ — *Multiply.*

$= \frac{20x^2}{180}$ — *Reduce.*

$= \frac{x^2}{9}$ — *Ans.*

17. $\frac{4x}{15} \; / \; \frac{5x}{12}$ — Flip 2nd fraction and multiply

$= \frac{4x}{15} * \frac{12}{5x}$ — Reduce.

$= \frac{4x}{5} * \frac{4}{5x}$ — x cancels out.

$= \frac{4}{5} * \frac{4}{5}$

$= \frac{16}{25}$ — ans.

Solve each of the following equations or inequalities.

18. $6 - 4x = 11 - x$ — *Add x to both sides.*

$+x \qquad +x$

$6 - 3x = 11$ — *Subtract 6 from both sides.*

$-6 \qquad -6$

$-3x = 5$ — *Divide both sides by - 3.*

$\frac{-3x}{-3} = \frac{5}{-3}$

$x = \frac{-5}{3}$ — *Ans.*

19. $8 - 3(5 + x) \geq 14$ — *Multiply using distributive property.*

$= 8 - 15 - 3x \geq 14$ — *Combine like terms.*

$= -7 - 3x \geq 14$ — *Add 7 to both sides.*

$+7 \qquad +7$

$-3x \geq 21$ — *Divide both sides by - 3. (Switch inequality symbol when dividing by a negative.)*

$\frac{-3x}{-3} \geq \frac{21}{-3}$

$x \leq -7$ — *Ans.*

20. $\frac{t}{4} - \frac{t}{6} = 4$ — *Multiply both sides by LCD (12) using distributive property.*

$12\left(\frac{t}{4}\right) - 12\left(\frac{t}{6}\right) = 12 \cdot 4$ — *Reduce.*

$3t - 2t = 48$ — *Combine like terms.*

$t = 48$ — *Ans.*

21. $\frac{2x - 1}{3} - \frac{x - 5}{5} = 3$ — *Multiply both sides by LCD(15) using distributive property.*

$15\left(\frac{2x - 1}{3}\right) - 15\left(\frac{x - 5}{5}\right) = 15 \cdot 3$ — *Reduce.*

$5(2x - 1) - (x - 5) = 45$ — *Multiply using distributive property.*

$10x - 5 - x + 5 = 45$ — *Combine like terms.*

$9x = 45$ — *Divide both sides by 9.*

$\frac{9x}{9} = \frac{45}{9}$

$x = 5$ — *Ans.*

22. $(x - 3)(x - 6) = -2$ — *Apply FOIL method to left side.*

$x^2 - 3x - 6x + 18 = -2$ — *Combine like terms.*

$x^2 - 9x + 18 = -2$ — *Add 2 to both sides.*

$+2 \qquad +2$

$x^2 - 9x + 20 = 0$ — *Factor using AC method.*

$x^2 - 5x - 4x + 20 = 0$

$x(x - 5) - 4(x - 5) = 0$

$(x - 4)(x - 5) = 0$

$x - 4 = 0$ ; or $x - 5 = 0$ — *Solve for x.*

$x = 4$ ; $x = 5$ — *Ans.*

23. $(x + 4)^2 = x + 10$ — *Apply FOIL method to left side.*

$x^2 + 8x + 16 = x + 10$ — *Subtract x and 10 from both sides.*

$-x \quad -10 \quad -x \quad -10$

$x^2 + 7x + 6 = 0$ — *Factor using AC method.*

$x^2 + 6x + x + 6 = 0$

$x(x + 6) + 1(x + 6) = 0$

$(x + 1)(x + 6) = 0$

$x + 1 = 0$ ; or $x + 6 = 0$ — *Solve for x.*

$x = -1$ ; $x = -6$ — *Ans.*

24. $3 + \frac{2}{x} = 5$ — *Multiply both sides by LCD(x) using distributive property.*

$3(x) + \frac{2}{x}(x) = 5(x)$ — *Reduce.*

$3x + 2 = 5x$ — *Subtract 2 from both sides.*

$-2 \quad -2$

$3x = 5x - 2$ — *Subtract 5x from both sides.*

$-5x \quad -5x$

$-2x = -2$ — *Divide both sides by -2.*

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

$x = 1$ — *Ans.*

25. $\frac{5x - 2}{6} - \frac{x - 2}{4} = \frac{5}{2}$ — *Multiply both sides by LCD(12) using distributive property.*

$12\left(\frac{5x - 2}{6}\right) - 12\left(\frac{x - 2}{4}\right) = \frac{5 \cdot 12}{2}$ — *Reduce.*

$2(5x - 2) - 3(x - 2) = 5 \cdot 6$ — *Multiply using distributive property.*

$10x - 4 - 3x + 6 = 30$ — *Combine like terms.*

$7x + 2 = 30$ — *Subtract 2 from both sides.*

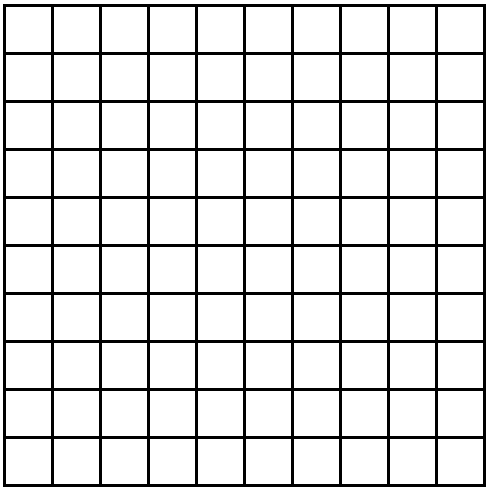
$-2 \quad = -2$

$7x = 28$ — *Divide both sides by 7.*

$\frac{7x}{7} = \frac{28}{7}$

$x = 4$ — *Ans.*

26. Sketch the graph of the following equation: $y = 3x - 2$



27. The length of a rectangle is 3 less than twice its width. If the area of the rectangle is 65 sq. in., find the dimensions of the rectangle.

Let length = l, and width = w. $l = 2w - 3$. Area = $l \times w = (2w - 3)w = 2w^2 - 3w = 65$.

Solve for w: $2w^2 - 3w - 65 = 0$

$2w^2 - 13w + 10w - 65 = 0$

$w(2w - 13) + 5(2w - 13) = 0$

$(w + 5)(2w - 13) = 0$

$w + 5 = 0$ ; or $2w - 13 = 0$

$w = -5$ ; or $w = 6.5$

Since width cannot be negative $w = 6.5$. $l = 2w - 3 = 2(6.5) - 3 = 13 - 3 = 10$.

Ans. Width = 6.5 ; Length = 10.

28. Lou bought 2 stuffed animals and 5 games for a total of $36. Alex bought 3 stuffed animals and 2 games for a total of $32. What was the price of a single stuffed animal and a single game?

Let the price of a single animal = a, and the price of a single game = g.

The problem says that $2a + 5g = 36$ and $3a + 2g = 32$.

Solving the system of equations by adding we get:

$3(2a + 5g = 36)$

$-\ 2(3a + 2g = 32)$

$11g = 44$

$g = 4$

Substitute g back into one of original equations to find a:

$2a + 5g = 36$

$2a + 5(4) = 36$

$2a + 20 = 36$

$2a = 16$

$a = 8$

Ans. Price of a single stuffed animal = 8, and price of a single game = 4.

29. How many ounces each of a 40% and a 30% alcohol solution need to be mixed together to produce 60 ounces of a 34% alcohol solution?

Let the number of ounces of 40% solution = n, and the number of ounces of 30% solution = m. From the question, we know that the total number of ounces must equal 60. Therefore, $m + n = 60$. We also know that $40\%n + 30\%m = 34\%(60)$.

We now have two equations and two variables so we can solve the system of equations like so:

$m + n = 60$

$m = 60 - n$

Substitute m into next equation to get:

$40\%n + 30\%m = 34\%(60)$

$40\%n + 30\%(60 - n) = 20.4$

$40\%n + 18 - 30\%n = 20.4$

$10\%n = 2.4$

$n = 24$

To find m, substitute n into $m = 60 - n$ to get:

m = 60 - 24
m = 36

Ans. 24 ounces of 40% solution and 36 ounces of 30% solution are needed.

30. 300 rolls of film were purchased for $1150. Some of the rolls were regular film costing $3 per roll, and the rest were movie film costing $5 per roll. How many of each type were bought?

Let the number of rolls of regular film = r, and
the number of rolls of movie film = m.

From the question we know that r + m = 300 or r = 300 - m. We also know that:

3r + 5m = 1150

Substituting r into the equation we get:

3(300 - m) + 5m = 1150
900 - 3m + 5m = 1150
2m = 250
m = 125

r = 300 - m, so r = 300 - 125 = 175.

Ans. Number of rolls of regular film = 175, and
the number of rolls of movie film = 125

31. D
32. C
33. A
34. D
35. D
36. B
37. D
38. B
39. B
40. A