

Lesson 3 Reading Practice

1. The first row contains 12 groups of Braille characters. The second row contains 12 groups. The third row contains 12 groups. The fourth row contains 12 groups. The fifth row contains 12 groups. The sixth row contains 12 groups. The seventh row contains 12 groups. The eighth row contains 12 groups. The ninth row contains 12 groups. The tenth row contains 12 groups. The eleventh row contains 12 groups. The twelfth row contains 12 groups.

Lesson 4 Reading Practice

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Lesson 9 Reading Practice

1. The first part of the text discusses the importance of reading for learning and growth. It emphasizes that reading provides access to a vast amount of knowledge and helps develop critical thinking skills. Regular reading is essential for staying informed about current events and understanding different perspectives.

2. In the second part, the author explores various genres and their benefits. Fiction allows readers to experience new worlds and characters, while non-fiction provides factual information and practical advice. Reading also helps improve language skills and vocabulary, which are crucial for effective communication.

3. The third part of the text focuses on how to choose books that are both enjoyable and educational. It suggests looking for books that challenge the reader and provide new insights. Reading should be a pleasurable activity that encourages a love for learning and discovery.

4. Finally, the author concludes by encouraging readers to make reading a daily habit. It is not just about the quantity of books read, but also about the quality of the reading experience. Finding time to read, even in small increments, can lead to significant personal and intellectual growth over time.

Lesson 10 Reading Practice

1. The first section of the text discusses the role of reading in personal development. It highlights how reading can help individuals understand themselves better and their place in the world. Through literature, readers can explore complex human emotions and experiences, leading to greater self-awareness and empathy.

2. The second section focuses on the impact of reading on society. It argues that a well-read population is more likely to engage in civic activities and contribute to the betterment of the community. Reading fosters a sense of shared values and common purpose, which are essential for a healthy and functioning society.

3. The third section of the text addresses the challenges of reading in the digital age. While technology has made books more accessible than ever, it has also introduced distractions that can hinder deep reading. The author suggests strategies to overcome these challenges, such as setting aside dedicated reading time and minimizing digital interruptions.

4. Finally, the author concludes by emphasizing the long-term benefits of reading. It is an investment in one's future that pays off in numerous ways, from improved cognitive function to enhanced emotional resilience. Reading is a powerful tool for personal growth and societal progress.

Lesson 13 Reading Practice

1. The first row contains several groups of Braille characters, including a full line of Braille and a second line of Braille starting with a Braille space character.

2. A second section of Braille text, consisting of multiple lines of characters arranged in a structured, centered format.

3. A single line of Braille characters.

4. A final section of Braille text, consisting of several lines of characters arranged in a structured, centered format.

ANSWERS

Lesson 1

\$4.98, 27¢, \$0.11

6'8" = 80"

$27 - 31 < 31 - 27$

$6 : 2 :: 12 : 4$

$49 \div 7 > 1 \times 5$

$-.5 < .5$

$10 \cdot 10 \cdot 10 = 1,000$

Lesson 2

1. Show with cubes that $8 + 3 = 3 + 8$.
2. Fill in the missing numbers: $-7 - 5 \underline{\quad} -1 \quad 1 \underline{\quad} 5 \underline{\quad}$
3. I scored 100% on the "Counting By 8s" quiz!
4. Craig bought a bunch of bananas at \$.48 per pound. He spent \$1.68. How many pounds of bananas did he buy? *Answer:* 3.5 pounds
5. The test scores ranged from 26.5-98.9.

Lesson 3

- 1) On a number line, the distance from 0 to -3 is its absolute value—that is, $|-3| = 3$.
- 2) What is $|-13|$? $-(-13) = +13$ because two $-$'s make a $+$.
- 3) $[(3 + 2) \times (6 - 4) + 2] \times 4 = [(5 \times 2) + 2] \times 4 = 48$
- 4) Complete the number series: .25, .5, .75, , .

Lesson 4

Since $1 \text{ yr} = 52 \text{ weeks}$, how many weeks are there in 2 yrs?

The set of children wearing red socks today: {Chloe, Oliver, Charlie}.

Ava counted 7 drops in 1.5 sec. How many drops will fall in 1.5 min?

Here are the commutative properties of addition and multiplication expressed using a and b : $a + b = b + a$ and $a \cdot b = b \cdot a$ or $ab = ba$.

The area of rectangle PQRS is 4.5 sq m. If side PQ is 3 cm, how long is side QR?

Lesson 5

- i) The area of an ellipse, expressed as "A": $A = \pi ab$.
- ii) Point (5, 7) is on ray ST.
- iii) Power set notation may use the "Weierstrass P" as in $P(S)$. If $S = \{ \}$ then $P(S) = \{ \{ \}$ is returned.
- iv) The hexadecimal system uses symbols 0-9 and A-F. For example, 45,997 in base 10 is B3AD in base 16.

^{TN} Letters representing hexadecimal digits are capitalized in print. ^{TN}

Lesson 6

$\sim p \vee q$ spoken: "not p or q (or both)".

Integer division is sometimes denoted \backslash , as illustrated here: $10/3 = 3 + 1/3$, so $10 \backslash 3 = 3$. The remainder is not noted.

Graph this inequality: $y \leq x + 2$

Use a number line to explain why $-6 - -6 = 0$. Is this the same as $-6 - +6$?

$1 \# (2 \& 3) = (1 \# 2) \& (1 \# 3)$

Lesson 7

1. Several parallel β -sheets form a left-handed β -helix.
2. In the study of logic, use of the boldface equality sign **=** avoids unintended mix-ups with the standard equals sign.

^{TN} In the next question, double-struck letters are indicated in braille with the script typeform indicator. ^{TN}

3. Which symbol denotes the set of natural numbers?
 - a. \mathbb{Z}
 - b. \mathbb{N}
 - c. \mathbb{R}
4. Is there a vector \mathbf{s} such that $\mathbf{r} + \mathbf{s} = \mathbf{t}$?

Lesson 8

Isotopes

Hydrogen ${}^1_1\text{H}$

Uranium ${}^{238}_{92}\text{U}$

Cations

Sodium Na^+ ${}^{23}_{11}\text{Na}^+$

Aluminum Al^{3+} ${}^{27}_{13}\text{Al}^{3+}$

Anions

Iodine I^- ${}^{127}_{53}\text{I}^-$

Oxygen O^{2-} ${}^{16}_8\text{O}^{2-}$

Lesson 9

To simplify a radical expression, use the product and quotient properties of radicals,

$$\sqrt{xy} = \sqrt{x} \cdot \sqrt{y} \text{ and } \sqrt{\frac{x}{y}} = \frac{\sqrt{x}}{\sqrt{y}}$$

as demonstrated below.

$$\sqrt{16x} = \sqrt{16} \cdot \sqrt{x} = \sqrt{4^2} \cdot \sqrt{x} = 4\sqrt{x}$$

$$\sqrt{\frac{25}{16} x^2} = \frac{\sqrt{25}}{\sqrt{16}} \cdot \sqrt{x^2} = \frac{5}{4} x$$

$$\sqrt{\frac{15}{16}} = \frac{\sqrt{15}}{\sqrt{16}} = \frac{\sqrt{15}}{4}$$

Lesson 10

Prove that S is a subspace of V if and only if:

- (1) $v, w \in S \Rightarrow v + w \in S$
- (2) $\lambda \in K, v \in S \rightarrow \lambda \cdot v \in S$

Find the mistake:

$$\begin{array}{r} 4 \ 13 \\ \cancel{5} \ \cancel{3} \ 3 \ 5 \\ - \ 4 \ 9 \ 2 \ 5 \\ \hline 1 \ 4 \ 1 \ 0 \end{array}$$

Lesson 11

1. Calculate the total cost of an item selling for \$8.79 with 5.5% tax added.

$$8 \boxed{.} 79 \boxed{+} 5 \boxed{.} 5 \boxed{\%} \boxed{=} \quad \quad \quad \boxed{=}$$

2. $\angle ABD + \angle DBE = ?$
3. $[a, b] \oplus [c, d]$
4. $\{\triangle, \diamond, \circ\} \cup \{\square\}$
5. Add $\angle 30^\circ$ and $\angle 20^\circ$.

Lesson 12

Note: Your translation may show a different omission symbol in item (ii).

(i) Rewrite as a simplified fraction.

$$\begin{array}{l} 0.\overline{3} \\ 3.1\overline{6} \\ 2.\overline{18} \end{array}$$

(ii) 197

$$\begin{array}{r} \times 76 \\ \hline 11\Box 2 \\ 1\Box 79 \\ \hline 1\Box 9\Box 2 \end{array}$$

(iii) Versor $\hat{\mathbf{u}}$ of a non-zero vector \mathbf{u} is $\hat{\mathbf{u}} = \frac{\mathbf{u}}{|\mathbf{u}|}$ where $|\mathbf{u}|$ is the length of \mathbf{u} .

Lesson 13

The division problem $4.2 \overline{)3313.8}$ is demonstrated below.

$$\begin{array}{r} 789.0 \\ 4.2 \overline{)3313.8} \overline{0} \\ \underline{294} \\ 373 \\ \underline{336} \\ 378 \\ \underline{378} \\ 0 \end{array}$$

Compute the numbers indicated by the factorial notation.

1. $\frac{6!}{3!2!}$

2. $7!$

3. $\frac{10!}{5!5!}$

Lesson 14

Find the square root of 484.

$$\begin{array}{r} 22 \\ \sqrt{484} \\ 4 \\ 42 \overline{)084} \\ \times 2 \overline{)84} \\ 0 \end{array}$$

Since the remainder is 0, $\sqrt{484} = 22$.

Provide your answers to the following problems on a separate sheet of paper.

1. Find the value of $\sin \frac{5\pi}{12}$.
2. What is $\text{Arc csc}(-\sqrt{2})$?
3. Simplify: $e^{\log_e e}$
4. Prove this reduction formula : $\tan(90^\circ + \theta) = -\cot \theta$.
5. Is the following identity true? $\cot 2\theta = \frac{\cot^2 \theta - 1}{2 \cot \theta}$

Lesson 15

$$\begin{array}{r} 8\frac{12}{8} \\ 8) \quad 9\frac{1}{2} = 9\frac{4}{8} \\ -4\frac{7}{8} = 4\frac{7}{8} \\ \hline 4\frac{5}{8} \end{array}$$

- 9) If $\frac{1}{2} \div \frac{1}{3} = \frac{1}{\frac{2}{3}}$, express $\frac{\frac{1}{2}}{\frac{1}{3}}$ using \div symbols.

Lesson 16

Scalar Multiplication Multiply the matrix by the scalar "2", like this:

$$2 \times \begin{bmatrix} 4 & 0 \\ 1 & -9 \end{bmatrix} = \begin{bmatrix} 8 & 0 \\ 2 & -18 \end{bmatrix}.$$

The second matrix is the result of four calculations: $2 \times 4 = \mathbf{8}$, $2 \times 0 = \mathbf{0}$, $2 \times 1 = \mathbf{2}$, and $2 \times -9 = \mathbf{-18}$.

The system $\begin{pmatrix} x+2y = 8 \\ 2x-3y = 2 \end{pmatrix}$ has the solution set $\{(4, 2)\}$.