

# Indiana ILEARN Grade 8 Math Workbook

*Practice Problems & Exercises with Answer Key*

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PRACTICE MAKES PERMANENT

# Grade 8 Math Workbook

Practice Problems • Word Problems • Complete Answer Key

*Grade 8 math marks the bridge between middle school arithmetic and high-school algebra. This workbook gives you focused practice on every topic — from irrational numbers and exponents to linear equations, functions, geometry transformations, and data analysis.*

*Work through each section at your own pace, show every step, then check the answer key in the back. Mistakes are not failures — they are the moments where real learning happens.*

 **32 Topics Across 6 Chapters**

*Irrational numbers, scientific notation, linear equations, functions, geometry, and data analysis — every Grade 8 standard.*

 **Progressive Difficulty**

*Each topic builds from foundational recall to multi-step reasoning.*

 **Real-World Applications**

*Apply your skills to science, engineering, finance, and everyday problem solving.*

 **Complete Answer Key**

*Every problem has a detailed answer in the back. Check your work, identify mistakes, and strengthen weak spots.*



# How to Use This Workbook

*Four steps to get the most out of every section.*

**1**

## **Read the Quick Review**

*Every topic opens with a brief reminder of the key idea or formula. If something feels unfamiliar, pair this workbook with the matching study guide for a full explanation before diving into problems.*

**2**

## **Work the Problems in Order**

*Problems are arranged from straightforward to challenging. Starting with the easier ones builds momentum and warms up your thinking before the tougher questions arrive.*

**3**

## **Show Every Step**

*Write out your reasoning on scratch paper. When an answer is wrong, your written work reveals exactly where the logic broke down — and that is the fastest way to fix it.*

**4**

## **Check Answers and Reflect**

*After finishing a section, flip to the Answer Key and mark every problem. For each mistake, figure out why it happened. Then try a similar problem again until it clicks.*



### **Suggested Weekly Routine**

- **Mon–Thu:** One topic per day (20–30 minutes).
- **Friday:** Review the week's mistakes and redo missed problems.
- **Weekend:** Rest — or tackle a challenge problem!



### **Tips for Parents & Teachers**

- Let your student work independently first.
- Review mistakes together — focus on why, not just the answer.
- Praise effort and persistence, not just correct answers.

 **Pair It Up**

*This workbook focuses on practice. For detailed explanations, worked examples, and teaching notes, use it alongside the Grade 8 Math Study Guide or your classroom textbook.*

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# What You'll Need

*Gather these supplies before you start.*



## **Pencils**

*Mechanical or sharpened*



## **Eraser**

*Good erasers save time*



## **Graph Paper**

*For graphing & coordinates*



## **Ruler & Protractor**

*For geometry sections*



## **Scientific Calculator**

*For checking, not shortcuts*



## **A Focused Mindset**

*Persistence is the key*

### **A Note for Parents & Teachers**

- This workbook pairs perfectly with the **Grade 8 Math Study Guide**. Use the Study Guide to learn concepts, then this workbook for focused practice.
- Topics follow the same order as the Study Guide for easy cross-reference.
- Keep sessions to 20–30 minutes for best focus and retention.
- Encourage students to show all work — the process matters as much as the answer.
- Celebrate progress. Even a few problems each day builds lasting math confidence.

# Math Symbols & Vocabulary

*A quick reference you can come back to any time.*

## X<sup>1</sup> Key Symbols & Notation

| Symbol            | Name                  | What It Means                                              |                    |
|-------------------|-----------------------|------------------------------------------------------------|--------------------|
| $a^n$             | Exponent              | $a$ multiplied by itself $n$ times.                        | $2^3 = 8$          |
| $\sqrt{\quad}$    | Square Root           | The number that, multiplied by itself, gives the original. | $\sqrt{49} = 7$    |
| $\sqrt[3]{\quad}$ | Cube Root             | The number whose cube equals the original.                 | $\sqrt[3]{27} = 3$ |
| $ x $             | Absolute Value        | Distance from zero on the number line.                     | $ -5  = 5$         |
| $\approx$         | Approximately Equal   | Close in value but not exact.                              | $\pi \approx 3.14$ |
| $\neq$            | Not Equal To          | The two sides are different.                               | $3 \neq 5$         |
| $\leq, \geq$      | Less/Greater or Equal | Includes the boundary value.                               | $x \leq 10$        |
| $f(x)$            | Function Notation     | The output of function $f$ for input $x$ .                 | $f(3) = 7$         |

### Key Vocabulary for Grade 8

- **Rational number** — can be written as  $\frac{a}{b}$
- **Irrational number** — non-repeating, non-terminating decimal
- **Scientific notation** —  $a \times 10^n$  form
- **Slope** — steepness of a line ( $\frac{\text{rise}}{\text{run}}$ )
- **y-intercept** — where a line crosses the y-axis
- **System of equations** — two or more equations together
- **Function** — each input maps to exactly one output
- **Linear** — constant rate of change; a straight line
- **Nonlinear** — rate of change varies; curved graph
- **Transformation** — move, flip, rotate, or resize a figure
- **Congruent** — same shape and size
- **Similar** — same shape, different size (proportional)
- **Hypotenuse** — longest side of a right triangle
- **Scatter plot** — graph showing data point pairs

### Useful Number Facts

| Fraction                   | Decimal                                    | Percent                     |                          |
|----------------------------|--------------------------------------------|-----------------------------|--------------------------|
| $\frac{1}{2} = 0.5 = 50\%$ | $\frac{1}{3} \approx 0.333 = 33.\bar{3}\%$ | $\frac{1}{4} = 0.25 = 25\%$ |                          |
| $\frac{1}{5} = 0.2 = 20\%$ | $\frac{1}{8} = 0.125 = 12.5\%$             | $\frac{3}{4} = 0.75 = 75\%$ |                          |
| $\pi \approx 3.14159$      | $\sqrt{2} \approx 1.414$                   | $\sqrt{3} \approx 1.732$    | $\sqrt{5} \approx 2.236$ |





# Grade 8 Formula Reference

Keep this page handy — you may use it during your practice tests!

## Exponent Rules

$$a^m \cdot a^n = a^{m+n} \quad (a^m)^n = a^{mn} \quad (ab)^n = a^n \cdot b^n$$
$$\frac{a^m}{a^n} = a^{m-n} \quad a^0 = 1 \quad (a \neq 0) \quad a^{-n} = \frac{1}{a^n}$$

## Lines & Linear Equations

**Slope:**  $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{\text{rise}}{\text{run}}$

$m$  = slope     $b$  =  $y$ -intercept

**Slope-intercept:**  $y = mx + b$

Parallel lines: same slope

**Proportional:**  $y = mx$

Proportional: passes through origin

## Scientific Notation

$a \times 10^n$  where  $1 \leq |a| < 10$

**Multiply:** add exponents

**Divide:** subtract exponents

## Roots & Number Sense

**Perfect squares:** 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144

**Perfect cubes:** 1, 8, 27, 64, 125       $\sqrt{2} \approx 1.414$        $\sqrt{3} \approx 1.732$        $\pi \approx 3.14159$

## Pythagorean Theorem & Distance

$a^2 + b^2 = c^2$      $c$  = hypotenuse (longest side of a right triangle)    **Distance:**  $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

## Volume Formulas

**Cylinder**  $V = \pi r^2 h$       **Cone**  $V = \frac{1}{3} \pi r^2 h$       **Sphere**  $V = \frac{4}{3} \pi r^3$

### Angle Relationships

**Triangle angle sum:**  $180^\circ$

**Exterior angle** = sum of two remote interior angles

**Parallel lines + transversal:** Alternate interior angles are equal • Co-interior angles sum to  $180^\circ$

### Functions

Each input  $\rightarrow$  exactly one output    **Vertical line test:** if any vertical line hits graph more than once  $\Rightarrow$  not a function

**Linear:** constant rate of change ( $y = mx + b$ )

**Nonlinear:** rate of change varies

### Transformations

**Translation:** slide

**Reflection:** flip

**Rotation:** turn

**Dilation:** resize

Congruent = same shape & size

Similar = same shape, proportional size



**Tip:** Bookmark this page! Review it before each test so these formulas become second nature.



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# My Progress Log

Track your work through every chapter and topic.

This book belongs to: \_\_\_\_\_

 Chapter 1: Irrational Numbers

Done ☐ Score: \_\_\_\_\_ / \_\_\_\_\_

 Chapter 2: Powers, Roots, & Scientific Notation

Done ☐ Score: \_\_\_\_\_ / \_\_\_\_\_

 Chapter 3: Lines and Linear Equations

Done ☐ Score: \_\_\_\_\_ / \_\_\_\_\_

 Chapter 4: Functions

Done ☐ Score: \_\_\_\_\_ / \_\_\_\_\_

 Chapter 5: Geometry

Done ☐ Score: \_\_\_\_\_ / \_\_\_\_\_

 Chapter 6: Data and Relationships

Done ☐ Score: \_\_\_\_\_ / \_\_\_\_\_

🎯 My Goal

I want to finish \_\_\_\_\_ topics each week.

Target date:

\_\_\_\_\_



## ★ Table of Contents ★

*Here's what we'll explore together!*

|     |                                   |    |
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| ★ 2 | <i>Lines and Linear Equations</i> | 6  |
| ★   | <i>Answer Key</i>                 | 12 |



*Let's learn and have fun!*



CHAPTER

1

# *Irrational Numbers*

## ★ *What's Inside* ★

|                                                         |          |
|---------------------------------------------------------|----------|
| <b>1.1</b> <i>Rational and Irrational Numbers</i> ..... | <b>3</b> |
|---------------------------------------------------------|----------|

## ★ 1.1 Rational and Irrational Numbers ★

### Rational and Irrational Numbers

#### Quick Review: Rational vs. Irrational Numbers

A **rational number** can be written as  $\frac{a}{b}$  where  $a$  and  $b$  are integers and  $b \neq 0$ . An **irrational number** cannot be written as a fraction of two integers.

- **Terminates:**  $0.75 = \frac{3}{4} \rightarrow \text{rational}$
- **Repeats:**  $0.\overline{3} = \frac{1}{3} \rightarrow \text{rational}$
- **Never terminates or repeats:**  $\sqrt{2} = 1.41421 \dots \rightarrow \text{irrational}$

**Quick test:** Can you write it as  $\frac{a}{b}$ ? Yes  $\rightarrow$  rational. No  $\rightarrow$  irrational.

**Remember:** Every integer is rational! For example,  $-3 = \frac{-3}{1}$ .

#### Warm-Up

##### Classify Each Number

Write **Rational** or **Irrational** for each number.

1.  $\frac{5}{8}$  \_\_\_\_\_

4.  $-7$  \_\_\_\_\_

2.  $\sqrt{16}$  \_\_\_\_\_

5.  $0.\overline{6}$  \_\_\_\_\_

3.  $\pi$  \_\_\_\_\_

6.  $\sqrt{7}$  \_\_\_\_\_



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### What Kind of Decimal?

For each number, state whether its decimal expansion **terminates**, **repeats**, or **neither terminates nor repeats**. Then classify the number as rational or irrational.

7.  $\frac{3}{4}$  \_\_\_\_\_

8.  $\frac{5}{11}$  \_\_\_\_\_

9.  $\sqrt{10}$  \_\_\_\_\_

10. 0.125 \_\_\_\_\_

11.  $\sqrt{36}$  \_\_\_\_\_

12.  $\frac{1}{7}$  \_\_\_\_\_

### Write as a Fraction

If the number is rational, write it as a fraction  $\frac{a}{b}$  in simplest form. If it is irrational, write "Irrational."

13. 0.4 \_\_\_\_\_

16.  $\sqrt{25}$  \_\_\_\_\_

14.  $\sqrt{2}$  \_\_\_\_\_

17. 1.2 \_\_\_\_\_

15. -0.75 \_\_\_\_\_

18.  $\sqrt{15}$  \_\_\_\_\_

### True or False?

19. Every whole number is a rational number.

True ☐ False ☐

20. The number  $\sqrt{9}$  is irrational.

True ☐ False ☐

21. All decimals that go on forever are irrational.

True ☐ False ☐

22. The number 0 is rational.

True ☐ False ☐



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  **Word Problems** 

23. Marcus says that  $\sqrt{50}$  is rational because it simplifies to  $5\sqrt{2}$ . Is Marcus correct? Explain.

Answer: \_\_\_\_\_

24. Give an example of a number that is a fraction but is NOT rational. If no such number exists, explain why.

Answer: \_\_\_\_\_

25. A calculator shows  $0.142857142857\dots$  for a division problem. Is the result rational or irrational? How do you know?

Answer: \_\_\_\_\_

 **Challenge!**

26. Without a calculator, determine whether  $\sqrt{144}$  is rational or irrational. Explain your reasoning.

27. Is  $\sqrt{2} + \sqrt{2}$  rational or irrational? Justify your answer.

**Awesome work! You can now tell rational and irrational numbers apart like a pro!**



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CHAPTER

2

## *Lines and Linear Equations*

### ★ *What's Inside* ★

**2.1** *Graphing Proportional Relationships* ..... 7



## ★ 2.1 Graphing Proportional Relationships ★

### Graphing Proportional Relationships

#### Quick Review: Proportional Relationships

A **proportional relationship** has the equation  $y = kx$ , where  $k$  is the **constant of proportionality** (unit rate).

- On a graph, a proportional relationship is a **straight line through the origin**  $(0, 0)$ .
- To find  $k$  from a point:  $k = \frac{y}{x}$ .
- To compare two relationships, compare their values of  $k$ .

**Example:** A graph passes through  $(4, 12)$ . Then  $k = \frac{12}{4} = 3$ , so the equation is  $y = 3x$ .

#### Warm-Up

##### Find the Unit Rate

Find  $k$  for each proportional relationship.

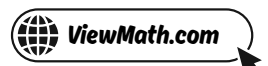
1. A car drives 120 miles in 2 hours. \_\_\_\_\_  
\_\_\_\_\_
2. A machine makes 45 parts in 5 minutes. \_\_\_\_\_  
\_\_\_\_\_
3. A graph passes through  $(3, 21)$ . \_\_\_\_\_
4. A recipe uses 8 cups of flour for 4 batches. \_\_\_\_\_
5. A graph passes through  $(6, 18)$ . \_\_\_\_\_



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## ✎ Write the Equation ✎

### From a Point to an Equation

Each point lies on a proportional relationship. Write the equation  $y = kx$ .

6.  $(2, 10)$  \_\_\_\_\_

8.  $(3, 7.5)$  \_\_\_\_\_

7.  $(5, 20)$  \_\_\_\_\_

9.  $(8, 6)$  \_\_\_\_\_

### From a Table to an Equation

Write the equation  $y = kx$  for each table.

10. 

|     |   |    |    |    |
|-----|---|----|----|----|
| $x$ | 1 | 3  | 5  | 7  |
| $y$ | 4 | 12 | 20 | 28 |

\_\_\_\_\_

11. 

|     |   |    |    |    |
|-----|---|----|----|----|
| $x$ | 2 | 4  | 6  | 10 |
| $y$ | 7 | 14 | 21 | 35 |

\_\_\_\_\_

## ✎ Comparing Relationships ✎

12. Store A sells oranges at \$3 per pound. Store B sells 5 pounds for \$12.50. Which store has the lower price per pound?
13. Hose A:  $y = 6x$  (gallons per minute). Hose B fills 100 gallons in 20 minutes. Which is faster?
14. Cyclist A rides through  $(2, 24)$  on a distance-time graph. Cyclist B:  $y = 10x$ . Who is faster?
15. Employee A earns \$90 for 6 hours. Employee B earns \$130 for 10 hours. Who has the higher hourly rate?



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 True or False? 

16. Every proportional relationship passes through the origin. True ☐ False ☐
17. If  $(3, 9)$  is on a proportional graph, then  $(6, 18)$  must also be on it. True ☐ False ☐
18. A proportional relationship can have a negative constant of proportionality. True ☐ False ☐
19. The equation  $y = 5x + 3$  represents a proportional relationship. True ☐ False ☐

  Word Problems 

20. A factory produces widgets at a constant rate. It makes 240 widgets in 8 hours. Write the equation and predict how many widgets are made in 15 hours.

Answer: \_\_\_\_\_ widgets

21. Two printers are compared. Printer A prints  $y = 12x$  pages per minute. Printer B prints 200 pages in 25 minutes. Which printer is faster, and by how much?

Answer: \_\_\_\_\_ pages/min

22. A proportional relationship passes through  $(4, 22)$ . What is the  $y$ -value when  $x = 10$ ?

Answer: \_\_\_\_\_

 Challenge!

23. A bike ride is proportional with  $k = 15$  km/h. A bus goes 180 km in 3 hours. You need to travel 90 km. How much sooner does the bus arrive than the bike?

24. The point  $(a, 36)$  lies on the proportional graph  $y = 9x$ . Find  $a$ .



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*Awesome work! You can spot proportional relationships anywhere now!*

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# *Answer Key*



## Answer Key

Try each problem on your own first, then check your work here.

### Chapter 1

#### > Section 1.1

1 Rational

2 Rational

3 Irrational

4 Rational

5 Rational

6 Irrational

7 Terminates; Rational

8 Repeats; Rational

9 Neither; Irrational

10 Terminates; Rational

11 Terminates; Rational

12 Repeats; Rational

13  $\frac{2}{5}$ 

14 Irrational

15  $-\frac{3}{4}$ 16  $\frac{5}{1}$  or 517  $\frac{6}{5}$ 

18 Irrational

19 True

20 False

21 False

22 True

23 No, Marcus is incorrect

24 No such number exists

25 Rational

26 Rational

27 Irrational

#### Explanations

1  $\frac{5}{8}$  is a fraction of two integers (5 and 8), so it is rational. Its decimal is 0.625, which terminates.

2  $\sqrt{16} = 4$ , which is an integer. Every integer can be written as a fraction, so it is rational.



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- 3  $\pi = 3.14159 \dots$  is a non-terminating, non-repeating decimal. It cannot be written as  $\frac{a}{b}$ .
- 4  $-7 = \frac{-7}{1}$ . Since it can be expressed as a fraction of two integers, it is rational.
- 5  $0.\overline{6} = 0.666 \dots$  is a repeating decimal, which means it is rational. In fact,  $0.\overline{6} = \frac{2}{3}$ .
- 6 7 is not a perfect square, so  $\sqrt{7}$  cannot be written as a fraction. Its decimal never terminates or repeats.
- 7  $\frac{3}{4} = 0.75$ , which terminates after two decimal places. Terminating decimals are always rational.
- 8  $\frac{5}{11} = 0.\overline{45}$ , which repeats. Repeating decimals are always rational.
- 9 10 is not a perfect square, so  $\sqrt{10} = 3.16227 \dots$  neither terminates nor repeats. It is irrational.
- 10 0.125 terminates. It equals  $\frac{125}{1000} = \frac{1}{8}$ , which is a fraction of two integers.
- 11  $\sqrt{36} = 6 = 6.0$ , a terminating decimal. Since 6 is an integer, it is rational.
- 12  $\frac{1}{7} = 0.\overline{142857}$ , which repeats with a 6-digit block. Repeating decimals are rational.
- 13  $0.4 = \frac{4}{10} = \frac{2}{5}$  after simplifying by dividing numerator and denominator by 2.
- 14 2 is not a perfect square, so  $\sqrt{2}$  cannot be expressed as a fraction. It is irrational.
- 15  $-0.75 = -\frac{75}{100} = -\frac{3}{4}$  after dividing numerator and denominator by 25.



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16  $\sqrt{25} = 5$ , which is an integer. As a fraction:  $\frac{5}{1}$ .

17  $1.2 = \frac{12}{10} = \frac{6}{5}$  after dividing numerator and denominator by 2.

18 15 is not a perfect square ( $3^2 = 9$ ,  $4^2 = 16$ ), so  $\sqrt{15}$  is irrational.

19 Every whole number  $n$  can be written as  $\frac{n}{1}$ , which is a fraction of two integers. So every whole number is rational.

20  $\sqrt{9} = 3$ , which is an integer. Integers are rational, not irrational.

21 Repeating decimals go on forever but are rational. For example,  $0.\overline{3} = \frac{1}{3}$  is rational. Only non-repeating, non-terminating decimals are irrational.

22  $0 = \frac{0}{1}$ , which is a fraction of two integers with a non-zero denominator. So 0 is rational.

23 Simplifying  $\sqrt{50}$  to  $5\sqrt{2}$  does not make it rational. The factor  $\sqrt{2}$  is irrational, and multiplying an irrational number by a non-zero rational (5) still gives an irrational result. So  $\sqrt{50}$  is irrational.

24 By definition, a rational number is any number that can be written as  $\frac{a}{b}$  with  $a, b$  integers and  $b \neq 0$ . Every fraction with integer numerator and denominator is automatically rational. Expressions like  $\frac{\sqrt{2}}{3}$  use an irrational numerator and are not "fractions" in the  $\frac{a}{b}$  sense.

25 The digits 142857 repeat in a cycle. A repeating decimal can always be converted to a fraction (this one equals  $\frac{1}{7}$ ). Therefore the result is rational.

26  $144 = 12^2$ , so  $\sqrt{144} = 12$ . Since 12 is an integer, it is rational.

27  $\sqrt{2} + \sqrt{2} = 2\sqrt{2}$ . Since  $\sqrt{2}$  is irrational and 2 is a non-zero rational number, the product  $2\sqrt{2}$  is still irrational.



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 Chapter 2

## &gt; Section 2.1

1 60 mph

2 9 parts/min

3 7

4 2 cups/batch

5 3

6  $y = 5x$ 7  $y = 4x$ 8  $y = 2.5x$ 9  $y = 0.75x$ 10  $y = 4x$ 11  $y = 3.5x$ 

12 Store B

13 Hose A

14 Cyclist A

15 Employee A

16 True

17 True

18 True

19 False

20  $y = 30x$ ; 450 widgets

21 Printer A by 4 pages/min

22 55

23 3 hours sooner

24 4

 Explanations
1 Divide distance by time:  $k = \frac{120}{2} = 60$  miles per hour.2 Divide parts by minutes:  $k = \frac{45}{5} = 9$  parts per minute.3  $k = \frac{y}{x} = \frac{21}{3} = 7$ .4 Divide cups by batches:  $k = \frac{8}{4} = 2$  cups per batch.5  $k = \frac{y}{x} = \frac{18}{6} = 3$ .6  $k = \frac{10}{2} = 5$ , so  $y = 5x$ .Find more at  
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7  $k = \frac{20}{5} = 4$ , so  $y = 4x$ .

8  $k = \frac{7.5}{3} = 2.5$ , so  $y = 2.5x$ .

9  $k = \frac{6}{8} = 0.75$ , so  $y = 0.75x$ .

10 Every  $\frac{y}{x}$  ratio equals 4:  $\frac{4}{1} = \frac{12}{3} = \frac{20}{5} = \frac{28}{7} = 4$ . So  $y = 4x$ .

11  $\frac{7}{2} = 3.5$ , and each ratio confirms this. So  $y = 3.5x$ .

12 Store A:  $k = 3$ . Store B:  $k = \frac{12.50}{5} = 2.50$ . Since  $2.50 < 3$ , Store B is cheaper.

13 Hose A:  $k = 6$  gal/min. Hose B:  $k = \frac{100}{20} = 5$  gal/min. Hose A is faster.

14 Cyclist A:  $k = \frac{24}{2} = 12$  km/h. Cyclist B:  $k = 10$  km/h. Cyclist A is faster.

15 Employee A:  $k = \frac{90}{6} = 15$ /hr. Employee B:  $k = \frac{130}{10} = 13$ /hr. Employee A earns more per hour.

16 By definition,  $y = kx$  gives  $y = 0$  when  $x = 0$ , so the graph always passes through  $(0, 0)$ .

17 The constant is  $k = \frac{9}{3} = 3$ . For  $x = 6$ :  $y = 3 \times 6 = 18$ . So  $(6, 18)$  is on the graph.

18 If  $y = -2x$ , the line passes through the origin with slope  $-2$ . This is still proportional.

19 Proportional relationships have the form  $y = kx$  with no added constant. The  $+3$  means the line does not pass through the origin.



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20  $k = \frac{240}{8} = 30$  widgets/hr. Equation:  $y = 30x$ . At 15 hours:  $y = 30 \times 15 = 450$  widgets.

21 Printer A:  $k = 12$ . Printer B:  $k = \frac{200}{25} = 8$ . Printer A is faster by  $12 - 8 = 4$  pages per minute.

22  $k = \frac{22}{4} = 5.5$ . When  $x = 10$ :  $y = 5.5 \times 10 = 55$ .

23 Bike time:  $\frac{90}{15} = 6$  hours. Bus rate:  $\frac{180}{3} = 60$  km/h, so bus time:  $\frac{90}{60} = 1.5$  hours. Difference:  $6 - 1.5 = 4.5$  hours.

24 Substitute into  $y = 9x$ :  $36 = 9a$ , so  $a = \frac{36}{9} = 4$ .



**Well done checking your answers!**

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THANK YOU

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