Fractions and Ratios

1. **Add** all three terms. Give a **mixed number** in **simplest form**.

$$\frac{5}{2} + \frac{7}{6} + \frac{3}{4} = _____$$

2. **Add** all three terms. Give an **improper fraction** in **simplest form**.

$$2\frac{1}{2} + 1\frac{3}{4} + 2\frac{5}{6} = _____$$

3. **Subtract**. Give an **improper fraction** in **simplest form**.

$$5\frac{1}{3} - 2\frac{3}{4} = _____$$

4. **Multiply all three factors**. Give the **simplest answer**.

$$3\frac{1}{3} \times 1\frac{4}{5} \times \frac{7}{4} = _____$$

5. **Divide** from **left to right**. Give the **simplest answer**.

$$7\frac{1}{2} \div 4\frac{1}{2} \div \frac{5}{6} = _____$$

6. Write the three-term **ratio** in **simplest whole-number form**.

$$\frac{3}{2} : \frac{1}{4} : \frac{5}{6} = _____$$

Decimals and Percentages

7. Calculate. Give the result as a **decimal**.

$$7\frac{1}{2} - 2.735 = _____$$

8. A **0.8** m ribbon loses **48.5 cm.** How many **metres** remain?

9. Calculate. Give the result as an **exact percentage**.

$$1\frac{1}{2} - \frac{1}{4} = _____ \%$$

10. **Calculate** each **percentage result**.
Convert the result to a **decimal** and a **fraction in simplest form**.

Calculation	Result (%)	Decimal	Fraction (simplest form)
a) $1\frac{3}{4}\% \div 2$			
b) $0.75\% \div 2$			
c) $125\% \div 2$			

11. What **percentage** of **$3.00** is **30 cents + 15** cents?

12. Increase $240 by **15%,** then **reduce** the **new amount** by **5%.** Find the **final amount.**

Money and Finance

13. Which is the **best** buy? Write a), b) or c).

a) **2 $\frac{1}{2}$ kg** of apples for **$8.75.**

b) **3 kg** of apples for **$10.20.**

c) **5 kg** of apples for **$18.50,** with **10% off** at **checkout.**

Best buy: _____

14. Calculate the **final sale price.** An **$80** jacket is **reduced** by **25%.** Take a **further 10%** off the **reduced price.**

15. Calculate the **net wage** after classroom tax. An employee works **36 $\frac{1}{2}$ hours.** The **first 35 hours** are paid at **$28.50** per hour; the **remaining hours** are paid at **double time.** Classroom tax is **20%** of the **total gross wage.**

16. Find the tablet's **original price.** The total paid is **$720, including $12 delivery.** The tablet is **25% off; delivery** is **not discounted.**

Item price only — delivery excluded

75% paid	25% discount

$0 Paid: _____ Original: _____

Patterns and Algebra

17. Rewrite without × or ÷; **fully simplify** and **collect like terms**.

a) $a \times 4 - (a \times 2 + 3) =$ _____

b) $2 \times b \times 3 \times c - b \times c + 2 \times b =$ _____

18. **Fully simplify** using **index notation**.

a) $2 \times m \times m \times 3 \times m^2 =$ _____

b) $-2 \times a \times a \times 3 \times b \times b \times c =$ _____

19. **Substitute y = −3**, then **solve for x** in each equation.

a) $2x = 3y + 2$ $x =$ _____

b) $3x + 2 = 4y - 1$ $x =$ _____

20. **Simplify each expression**.

a) $-6x + 9x - 5x =$ _____

b) $7x - (10x - 2x) =$ _____

21. Find the **requested terms**. For a), also give an **nth-term rule** (**n = 1** for the first term).

a) 5, 10, 17, 26, … **Find term 12.**

Term: _____ nth-term rule: _____

b) 3, 7, 15, 31, … **Find term 8.**

Term: _____