

1. Simplify the following, giving each answer in positive index form.

(a) $(3^{14} \times 3^{-3})^2$

(b) $14^{-3} \times 14^{-3}$

(c) $\frac{12^4}{9^4}$

(d) $(2^3)^5 \times (3^4 \times 2^2)^3 \times 3^9 \times \left(\frac{1}{4}\right)^0$

(e) $\frac{(7^{-2})^{-3}}{(7^2)^0 \times 7^{-10}}$

(f) $\frac{((2^{-1})^{-1})^{-1} \times 6^4}{2^9 \times 3^{10}}$

(g) $\frac{2^6 \times 8^{-3}}{4^{-3} \times 2^7}$

(h) $\frac{6^{-7} \times 2^{-6}}{9^{-7}} \times \left(\frac{3}{4}\right)^{-6}$

(i) $\frac{(15^{-4} \times 15^0 \times 15)^2}{(5^{-1})^8 \times 9^{-4}}$

2. Evaluate the following.

(a) $\left(\frac{2}{5}\right)^3$

(b) 7^{-2}

(c) $(0.04)^{-1}$

(d) $\left(1\frac{1}{4}\right)^{-3}$

(e) $\frac{1}{\left(\frac{3}{2}\right)^{-2}}$

(f) -5^0

(g) $-(2)^6$

(h) $(-8)^2$

(i) -4^{-3}

(j) $(-2)^{-6}$

(k) $[(-3)^{-1}]^3$

(l) $[(2^0)^{-1}]^{\frac{1}{2}} \times (2^3)^{-1}$

(m) $2^3 \times 3^{-3}$

(n) $2^3 + 2^4$

(o) $\frac{(-2^4)^5}{-(2^3)^4}$

(p) $\left(\frac{4^2}{2^3}\right)^{-2}$

(q) $1^3 + 2^3 + 3^3$

(r) $10^3 + 10^1 + 10^0 + 10^{-2}$

3. Evaluate the following.

(a) $\frac{8^{-7}}{4^{-3} \times 4^{-4}}$

(b) $\frac{2^5 \times 3^5}{6^2}$

(c) $\frac{12^3}{4^5 \times 3^2}$

(d) $\frac{4^2 \times 2^{-3}}{3^{-3} \times 6^2}$

(e) $\frac{(-3)^3 \times (-3)^{-6}}{(-2)^{-3}}$

(f) $\frac{2^7 \times 5^8 \times 2}{10^7}$

(g) $\frac{2^4 + 3^4}{5^3 - 5^2}$

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

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

(j) $\frac{(10^{11} \times 10^{-3})^2}{5^{17} \times 2^{17}}$

CHAPTER 6

Simultaneous Linear Equations

- (a) calculate the amount each adult paid
(b) find an equation connecting x and y

Solve the following simultaneous equations for x and y .

1. $5x - 4y = 40$
 $x + 4y = -16$

2. $6x + 7y = 10$
 $4x - 3y = -1$

3. $x - 6y = 17$
 $5x + 3y = 2\frac{1}{2}$

4. $3x + 2y = 0$
 $x - y = 2.5$

5. $x = 3y - 2$
 $9y = 4x - 7$

6. $2y + 3x = 0$
 $2x - 26 = 3y$

7. $3x - 4y = -6$
 $2x - \frac{4}{3}y = 4$

8. $13 + 2y = 9x$
 $3y = 7x$

9. $8x + 3y = -4$
 $\frac{1}{2}x - y = -5$

10. $7(x - y) = 6x - 1$
 $4(x + 1) = y + 3$

11. $4y = x + 1$

12. $\frac{x}{3} + \frac{y}{2} = 4$

13. $2y = \frac{2x + 3}{2}$

$\frac{2x}{3} - \frac{y}{6} = 1$

13. $1.2x - 0.8y = 0.4$
 $y + 0.1x = 0.3$

14. $5x + 7y - 17 = 0$
 $27 - 7y - 3x = 0$

15. $4(2x - y + 3) = 0$
 $2(x + y) - 3(x - y) = 6$

16. $\frac{x}{3} + \frac{y}{4} = 3x - 7y - 37 = 0$

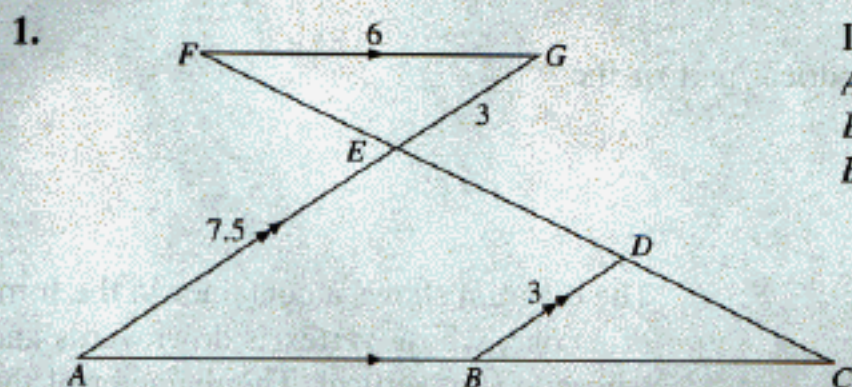
17. $\frac{1}{5}(x - 3) = \frac{1}{2}(y - 7)$
 $11x = 13y$

18. $\frac{1}{3}x - \frac{5}{9}y = -1$
 $0.4x + 0.5y = 2.3$

TEST PAPER 4

Time : 1 hour

Marks : 50



In the diagram, $FG \parallel AC$,
 $AG \parallel BD$, $FG = 6$ cm,
 $EG = 3$ cm, $AE = 7.5$ cm and
 $BD = 3$ cm.

- (a) Show that the triangles BCD and EFG are congruent. Write a correct statement of congruence and state the case of congruency. [3]

Ans _____

- (b) Find the length of AC .

Ans _____

- (c) Find the ratio $CD : DE$.

Ans _____