

Module-7

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Section:- 1 Ratio and Proportion :-

Lesson:- 2, Practice 2 :-

Section A.

A. Identify and label the base, part and rate :-

$$1. \frac{\text{Part}}{\text{Base}} = \frac{\text{Rate}}{100}$$

$$\frac{20\%}{100} = \frac{20}{100}$$

$$\text{Part} = 200$$

$$(\$1 - \$1.2) \approx 8 \text{ minutes}$$

$$\text{Base} = 1000$$

$$\text{Rate} = 20\%$$

$$2. \frac{\text{Part}}{\text{Base}} = \frac{\text{Rate}}{100}$$

$$\frac{72}{80} = \frac{90}{100}$$

$$\text{Part} = 72$$

$$\text{Base} = 80$$

$$\text{Rate} = 90\%$$

$$3. \frac{\text{Part}}{\text{Base}} = \frac{\text{Rate}}{100} = \frac{2740}{13700} = \frac{20}{100}$$

$$\text{Part} = 2740$$

$$\text{Base} = 13700$$

$$\text{Rate} = 20\%$$

Section-7 Part and proportion

4. Part = 2500

Base = 2000

Rate = 25%

5. Part = 40

Base = 60

Rate = 150%

B Section B :- (9.11 - 12)

11. $\frac{\text{Part}}{\text{Base}} = \frac{\text{rate}}{100} = \frac{9}{12} = \frac{\text{rate}}{100}$

$$\boxed{\text{rate} = \frac{9 \times 100}{12}}$$

option A

12. $\frac{6}{12} = \frac{y}{100} = \frac{16 \times 50}{12 \times 100}$

$$\boxed{\text{option A} = 50\%}$$

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Lesson - 3 :-Practice 3.1 :-A Section A :- (q1-5) :-

$$1. \frac{120}{100} \times 255 = \boxed{5}$$

$$2. \frac{90}{100} \times 200 = \boxed{180}$$

$$3. \frac{35}{100} \times 400 = \boxed{140}$$

$$4. \frac{19}{20} = \text{rate} = 0.95$$

$$\text{rate} = 95\%$$

$$5. \frac{\text{Base}}{168} = \frac{42}{100} = \frac{42 \times 168}{100}$$

$$= \boxed{70.56\%}$$

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B section B :- q(18, 19, 21)

$$18. \frac{6}{100} \times 2,250 = 135$$

$$2250 + 135 = 2385$$

Option B

$$19. x = \frac{46 \times 15}{100} = \$6.90$$

$$x = \$6.90$$

Option D

$$21. \text{Rate} = \frac{3 \times 100}{50}$$

Option A

$$\text{T.P.O} = \text{stmr} = \frac{\text{P.I}}{0.8}$$

$$\therefore \text{T.P} = \text{stmr}$$

$$\frac{281 \times 8\%}{0.81} = \frac{2\%}{0.81} = \frac{2.49\%}{0.81}$$

$$\therefore \text{P.T.O} =$$

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Practice - 3.2

A Section A :- (q1-5)

$$1. \quad 35 = \frac{20}{100} \times x$$

$$x = 175$$

$$2. \quad \frac{5}{100} \times x = 14$$

$$x = 280$$

$$3. \quad 3.2 = \frac{50}{100} \times x$$

$$x = 6.4$$

$$4. \quad 170 = \frac{85}{100} \times x$$

$$x = 200$$

$$5. \quad 24 = \frac{80}{100} \times x$$

$$x = 30$$

B. Section B :- q(20-21)

$$20. \quad \text{option D } \$120,000,000$$

$$72000 = \frac{6}{100} \times x$$

$$21. \quad \text{option B } \cancel{\frac{160 \times 100}{(2.201 - 2.021) - 5}}$$

$$\frac{160}{0.18} = 8888.89$$

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Lesson - 6 :- Practice 6 :-

A. Solve (91-5) :-

$$1. \frac{1000}{2000} = \frac{1}{2} = 0.5 = 50\%$$

$$2. \frac{0.75}{2} = 0.375 = 37.5\%$$

$$3. \frac{60}{30} = 2 = 200\%$$

$$4. \frac{9}{20} = 0.45 = 45\%$$

$$5. \frac{5}{25} = 0.2 = 20\%$$

B. Section B :- 9(14-15)

$$14 \quad \boxed{\text{option C } 125\%} = \frac{63 - 141.75}{63.0}$$

$$15 \quad \boxed{\text{option B } 30\%} = \frac{(150.5 - 105.35)}{150.5}$$

SECTION - 2 :-

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ALGEBRAIC EXPRESSIONS :-

Lesson - 1 :- Practice 1.1.

A Section A q(1-10) :-

1. $x - 7$

2. $3x^2$

3. ~~$10 = 8x$~~ $8x - 10$

4. $(-3x - 2y)$

5. $\frac{10 - 5}{x}$

6. $-8 + 7x$

7. $16x + (x - 3y)$

8. $x^2 + x^4$

9. $x^2 + \frac{4}{7}$

10. $6 - (15 + \sqrt{x})$

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B Section B :- Q21

21. $B = 6h + 0.03s$

Practice 1.2 Section AA. Q(1-5)

1. $5+x^2-3+3x$

$$= x^2 + 3x + 2 = 0$$

$$\therefore \underline{(x+2)(x+1)}$$

2. $2y+5+17y+8$

$$= 19y + 13 = 0$$

$$\boxed{y = \frac{-13}{19}}$$

3. $3x - 6x + 54 = 0$

$$-3x + 54$$

$$= x = \frac{54}{3}$$

$$x = 18$$

4. $6x^3 + 4 + 2x^2 (15) + x^2$

$$6x^3 + 4 + 30x^2 + x^2$$

$$6x^3 + 31x^2 + 4 = 0$$

$$5. \quad 4y + 32 + 3y - 18$$

$$\underline{7y + 14}$$

$$y = \frac{-14}{7}$$

$$\boxed{y = -2}$$

C. Section :- 923

$$23. \quad C = \frac{5}{9} (68 - 32)$$

$$= \frac{5}{9} (36)$$

$$\boxed{C = 20^\circ}$$

Option A 20°

Lesson - 3

Practice 3

A Section A (91-10) :-

1. $25a \rightarrow$ Monomial
2. $2xy^2z \rightarrow$ Monomial
3. $x-4 \rightarrow$ binomial
4. $x^3+y-1 \rightarrow$ Trinomial
5. $7y-1 \rightarrow$ binomial
6. $2x^4+3x+4 \rightarrow$ Trinomial
7. $\frac{x}{3} \rightarrow$ Monomial
8. $y^2 \rightarrow$ Monomial
9. $g^2h^2i^2j^2 \rightarrow$ Monomial
10. $x^2+x^2 \rightarrow$ Monomial

B. Section B Q (16-24) :-

16. $3x^4 - 2x^2 + 3$

Coefficient are : 3, -2, +3 (Trinomial)

Variable = x^4, x^2

17. $12a^2bc$

Coefficient = 12 (Monomial)

Variable = $a^2 b c$

18. $3g - 4h$

Coefficient = 3, -4

(Binomial)

Variable = g, h

19. $x^2 + y$

Coefficient = 1

(Binomial)

Variable = x^2, y

20. $-4a - 3b^2 + c$

(Trinomial)

Coefficient = -4, -3, 1

Variable = a, b^2 , c

21. 25

(Monomial)

coeffic constant = 25

22. $4x^2 + 3x - 7$ (Trinomial)

Coefficient = 4, 3, -7

Variable = x^2, x

23. $3x/8 \rightarrow$ Cannot be categorized as polynomial.

24. $\sqrt{25} \rightarrow$ cannot be categorized as polynomial.

C. Secondion C $q(31, 32)$

31. $4x^3 + 3x^2 + 5$

Exponent = $\underline{\underline{x^3 + x^2}}$

32. $a - 3b - c + 2d$

Sum coeff = $1 - 3 - 1 + 2 = \underline{\underline{-1}}$

(monomial)

(monomial)

Lesson-4:- Simplify Polynomials:-

Practice 4:-

A Section A Q(1-10):

1. $4x^3 - x^3$ like terms

$$(4+x^3) + (1+x^3) \cdot 1$$

$$2 + \underline{x^3}$$

2. $3x, x$ like terms

$$(3+x) + (1+x) \cdot 2$$

3. b, b^2 unlike terms

$$b + b^2 + b + b^2 \cancel{+ b^2}$$

$$2 + \underline{b^2}$$

4. $-2x, 7y$ unlike terms

$$(2+x^2 - \cancel{x^2}) + (7+x^2 - \cancel{x^2}) \cdot 8$$

5. $-2x, 7x$ like terms

$$5x + \cancel{x^2} - \cancel{x^2}$$

6. $4a, 4$ unlike terms

$$(4a + \cancel{4a}) + (4 + \cancel{4}) \cdot 4$$

$$0 + \cancel{8} =$$

7. g^2, g^2hi unlike terms

$$(2+\cancel{g^2} + \cancel{g^2}) + (1-\cancel{g^2} - \cancel{g^2}) \cdot 2$$

8. $2x^2y, 8x^2y$ like terms

$$10x^2y + \cancel{8x^2y}$$

9. $-5m, -5m^2$ unlike terms

10. x^2y, xy^2 unlike terms.

Lesson-5 Add and Subtract Polynomials

Practice 5.1

A. Section A Q(1-5)

$$1. (3x+4) + (2x+2)$$

$$\underline{5x+6}$$

$$2. (17y - y + 3) + (4y + 3y + 3)$$

$$\begin{array}{r} \cancel{17y} \\ 2y \\ + 16y + 3 \\ + 7y + 3 \\ \hline 23y + 6 \end{array}$$

$$3. (5x^2 - 3x + 4) + (3x^2 - 2x + 6)$$

$$\begin{array}{r} 8x^2 \\ - 5x + 10 \\ \hline \end{array}$$

$$4. (-a^2 + 2a) + (16a^2 + 6a)$$

$$-15a^2 + 8a$$

$$5. (9x^2 - 3x - 2) + (2x^2 + 5x + 5)$$

$$\begin{array}{r} 11x^2 \\ + 2x + 2 \\ \hline \end{array}$$

Lesson - 6 Multiply Polynomials :-

Practice 6

A section A Q(1-4)

$$1. (6x)(5x) = 30x^2$$

$$2. (2xy)(3y) = 6xy^2$$

$$3. (7abc)(4bc) = 28ab^2c^2$$

$$4. (12y)(z) = 12yz$$

B. section B Q(9-12) :-

$$9. 3z^2(6xy + 4z)$$

$$18xyz^2 + 12z^3$$

$$10. 6x(7x - 6z)$$

$$42x^2 - 36xz$$

$$11. -5ab(3b + 11c)$$

$$-15ab^2 - 55abc$$

$$12. -3f^3(6h - 8fgh^2)$$

$$-18hf^3 + 24f^4h^2g$$

C. Section C q(17-18) :-

17. $(x+5)(x-6)$

$$x^2 - 6x + 5x - 30$$

$$\boxed{x^2 - x - 30}$$

$$(x+5)(x-6) = (x+5)x - 5(x+5)$$

$$= (x^2)(x+5) - 5(x+5)$$

$$= (x^3)(x+5) - 5x^2 - 5x$$

18. $(x+y)(x+y)$

$$x^2 + xy + xy + y^2 = (x+y)(x+y)$$

$$\boxed{x^2 + 2xy + y^2} = (x+y)(x+y)$$

D. Section D q(25) :-

25. $(4a^3b^2)(3a^2c)$

$$12a^5b^2c$$

$$(4a^3b^2)(3a^2c) = 12a^5b^2c$$

$$= 12a^5b^2c$$

option A

$$(sa - sr)ca = 12a^5b^2c$$

$$= sa^5b^2 - sr^5b^2$$

$$(sa + sr)ab^2c = 12a^5b^2c$$

$$= ab^2c + sr^5b^2c$$

$$(sa + sr)ab^2c = 12a^5b^2c$$

$$= ab^2c + sr^5b^2c$$

Lesson - 7. Divide Polynomials:-

A. Section A q(1-5)

$$1. \frac{2y+30}{2} = \frac{2(y+15)}{2} = [y+15]$$

$$2. \frac{7x+21}{7} = \frac{7(x+3)}{7} = [x+3]$$

$$3. \frac{4x+20}{4} = \frac{4(x+5)}{4} = [x+5]$$

$$4. \frac{3a+3b}{3} = \frac{3(a+b)}{3} = [a+b]$$

$$5. \frac{11x^2+22x}{11} = \frac{11(x^2+2x)}{11} = [x^2+2x]$$

B. Section B q(13-17) :-

$$13. \frac{18x^2+6x}{3x} = \frac{3x(6x+2)}{3x} = [6x+2]$$

$$14. \frac{10x^2 + 6x}{2x} = \frac{2x(5x + 3)}{2x}$$

$$= \boxed{\underline{5x + 3}}$$

$$15. \frac{40y^2 + 10y}{8 + 5y} = \frac{5y(8y + 2)}{8 + 5y}$$

$$= \boxed{\underline{8y + 2}}$$

$$16. \frac{42xy + 49x}{7x} = \frac{7x(6y + 7)}{7x}$$

$$= \boxed{\underline{6y + 7}}$$

$$17. \frac{38xy + 38x}{19x} = \frac{19x(2y + 2)}{19x}$$

$$= \boxed{\underline{2y + 2}}$$

SECTION - 3 FUNCTIONS

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Lesson 1 Equations :-A Section A Practice 1.1 :-

Q (1-10) :-

1. $7x = 63$

$$\boxed{x = 9}$$

$$081 = 02 - x8 \cdot 1$$

$$021 = x8$$

$$02 = x$$

2. $23 + m = 51$

$$\boxed{m = 28}$$

$$81 - \mu 8 - = 2 - \nu 8$$

$$21 - m = 28$$

$$8 + 81 - = \mu 8$$

$$01 - = \mu 8$$

3. $-13 = y - 12$

$$\boxed{y = -1}$$

$$\boxed{\mu - = \mu 1}$$

4. $\frac{x}{4} = -16$

$$\boxed{x = -64}$$

$$21 - m \mu 1 = m \mu$$

5. $5a = 625$

$$\boxed{a = 125}$$

$$21 - = m 8 -$$

$$\boxed{2 = m 1}$$

6. $y - 17 = -30$

$$\boxed{y = -13}$$

$$58 - = \nu 8 - 2 + 8 -$$

$$58 - = x 8 + 2 + x 8 .$$

7. $x + 6 = 33$

$$\boxed{x = 27}$$

$$28 - = x 8$$

$$\boxed{y = x 1}$$

8. $4c = 28$

$$\boxed{c = 7}$$

$$42 = (2)8 + 08$$

$$42 = (2 + \mu)8 + \mu 8 .$$

9. $\frac{12}{x} = -3$

$$\boxed{x = -4}$$

$$42 = 2 + \mu 8 + \mu 8$$

$$42 = 2 + \mu 8$$

$$28 = + \mu 8$$

10. $2b = b + 33$

$$\boxed{b = -7}$$

$$28 = b + b$$

Practice 1.2
A Section A (91 - 5)

$$1. 3x - 20 = 130$$

$$\therefore 3(50) - 20 = 130$$

$$3x = 150$$

$$150 - 20 = 130$$

$$\boxed{1x = 50}$$

$$P = x$$

$$130 = 130 \times P$$

$$2. 2y - 8 = -3y - 18$$

$$-4 - 8 = 6 - 18$$

$$5y = -18 + 8$$

$$-12 = -12$$

$$5y = -10$$

$$81 - P = 81 - 8$$

$$\boxed{1y = -2}$$

$$1 = -P$$

$$3. 6m = 14m - 16$$

$$12 = 28 - 16$$

$$-8m = -16$$

$$\underline{12 = 12} = 0$$

$$\boxed{1m = 2}$$

$$P = x$$

$$12 = 12$$

$$4. 2x + 5 + 6x = -27$$

$$-8 + 5 - 24 = -27$$

$$8x = -32$$

$$-3 - 24 = -27$$

$$\boxed{1x = -4}$$

$$P = 0$$

$$82 = 34$$

$$5. 5y + 3(y+2) = 54$$

$$30 + 3(8) = 54$$

$$5y + 3y + 6 = 54$$

$$30 + 24 = 54$$

$$8y + = 48$$

$$54 = 54$$

$$\boxed{1y = 8}$$

$$P = d$$

$$88 + d = 36$$

Lesson - 2 Equation Word Problems Part - 1:

Practice - 2

A Section 1. q(1-5)

1. $H_1 + H_2 = 4400$

$$H_2 = 2(H_1) - 1000$$

$$H_1 + 2(H_1) - 1000 = 4400$$

$$3(H_1) = 5400$$

$$H_1 = \underline{\underline{1800}}$$

$$\text{House 1} = \underline{\underline{1800}}$$

$$\text{House 2} = \underline{\underline{2600}}$$

2. dimes = x quarters = y

$$\therefore x + y = 24$$

$\rightarrow \text{eq } ①$

dimes = 0.10 and quarters = .25 and total = \$4.5

$$.10x + .25y = 4.5 \quad \text{eq } ②$$

$$y = 24 + x$$

$$= .10x + .25(24 + x) = 4.5$$

$$= x = 10$$

$$y = 14$$

$\therefore \boxed{10 \text{ dimes and } 14 \text{ quarters}}$

$$3. \text{ game lost} = -x$$

$$\text{game win} = 2x$$

$$x + 2x = 36$$

$$\boxed{x = 12}$$

∴ They won 24 games and
lost 12 games

$$4. x + (x+2) + (x+4) + (x+6) = 212$$

$$4x + 12 = 212$$

$$4x = 200$$

$$x = 50$$

=====

$$50 + 52 + 54 + 56 = 212$$

$$\text{Third number} = \boxed{56}$$

μ = not group

① p3 ←

$$\mu_2 = \mu + 10.$$

$$5. \text{ Pant} = x$$

$$\text{Shirt} = y$$

$$\therefore x + y = 13$$

$$x + y = \mu$$

$$\therefore 6x + 4y = 62$$

$$\underline{\underline{x = 5}}$$

$$\underline{\underline{y = 8}}$$

$$\text{Pant} = 5 \text{ mtrs} \quad \therefore$$

$$\text{Shirt} = 8 \text{ } //$$

$$\mu_1 = \mu$$

Lesson-3 Algebra Problem Solving:-

Practice - 3

A. Section A $(a-5)^2 = 4$ Open loop 212
 $(a-11)^2 = a-4$

1. $\frac{x}{2} = x - 12$

$(a-11)^2 = a-4$

$x = 2x - 24$ Open loop 18 $x = 24$ Open loop 18 Option C

$18 \times 2 = 18 -$

2. $\therefore S = 3B$ option 11 $S = 11$ option 11

$\therefore B = 11 + 50$

$\therefore S + B + 11 = 95$ Open loop 11 = (8)B = 11

$3B + B + 11 + 50 = 95$ Open loop 11 \therefore Option C \$200

$5B = 100$ Open loop 11 $B = 20$ Open loop 11 \therefore

$B = 200$

3. $P = A = 2B$, $B = B$, $C = 3B$

$2B + B + 3B = 15$

$B = 2.5$

$\text{fintPack } 2(2.5) = 5$

Option C = 5

4. $M_1 + M_2 = 170$

$M_1 = M_2 - 6$

$= 2M_2 = 176$

$M_2 = 88$

$M_1 = 82$

Option B 82

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$$5. \quad N = 2M$$

Six years ago: $N - 6 = 5(M - 6)$

$$N - 6 = 5(M - 6)$$

$$2M - 6 = 5(M - 6)$$

$$2M - 6 = 5M - 30$$

$$-3M = -24$$

$$\underline{-3M} \quad M = 8 \quad (\text{Maria})$$

$$N = 2(8) = 16 \quad (\text{Nelson's age})$$

\therefore 6 years ago Nelson was $16 - 6$

$$= 10 \text{ years old}$$

Lesson - 4 : The coordinate Plane

Practice - 4

A Section :-

$$\mathcal{E} + x \perp = \mu$$

1. Point A = (-4, 5)

$$\mathcal{E} = \mu = \mathcal{E} + (\mathcal{E} \perp) \perp \therefore \mathcal{E} = \mu$$

2. Point B = (3, 6)

3. Point C = (0, 8) (0, -3)

$$\mu = \nu = \mathcal{E} + (\mathcal{E} \perp) \perp \mathcal{E} = x$$

4. Point D = (6, -7)

5. Point E = (-5, 0)

$$x \mathcal{E} - 1 = \mu = \mathcal{E} - x \mathcal{E} + \mu \cdot \mathcal{E}$$

6. Point F = (-6, -4)

7. Point G = (2, 0)

8. Point H = (7, -2)

Lesson 5:- Graphing a line :-

A. Section A Practice 5:-

$$1. \quad y = \frac{1}{2}x + 3$$

$$\text{if } x = -2 \quad \therefore \quad \frac{1}{2}(-2) + 3 = y = 2$$

$$\text{if } x = 0 \quad \therefore \quad 3 = y \quad y = 3$$

$x = -2$	$y = 2$
$x = 0$	$y = 3$
$x = 2$	$y = 4$

$$\text{if } x = 2 \quad \frac{1}{2}(2) + 3 = y = 4.$$

$$2. \quad y + 3x = -1 \quad \therefore \quad y = -1 - 3x$$

$$\text{if } x = -1 \quad \therefore \quad -1 + 3$$

$$\boxed{y = 2}$$

$$\text{if } x = 0 \quad \therefore \quad y = -1$$

$$\boxed{y = -1}$$

$$\text{if } x = 1 \quad \therefore \quad y = -1 - 3$$

$$\boxed{y = -4}$$

x	y
-1	2
0	-1
1	-4

$$3. -2 + y = -x$$

$$\therefore y = -x + 2$$

$$\text{if } x = 1 \quad \therefore -1 + 2$$

$$\boxed{y = 1}$$

x	y
1	1
2	0
3	-1

$$\text{if } x = 2 \quad \therefore y = -2 + 2 \quad y = 0$$

$$\text{if } x = 3 \quad y = -3 + 2 \quad \boxed{y = -1}$$

$$4. y = 3 - 2x$$

$$x = \cancel{\frac{y-3}{2}}$$

$$* = \frac{3-y}{2}$$

$$\text{if } x = 0 \quad \text{if } x = 0 \quad \therefore 3 - 3 \quad y = 3$$

x	y
0	3
1	1
2	-1

$$\text{if } x = 1 \quad \therefore y = 3 - 2(1) \quad y = 1$$

$$\text{if } x = 2 \quad \therefore y = 3 - 2(2) \quad y = -1$$