

Name { National Assessment } Index No.
Subject { Grade 9. } Paper No.
Invigilator(s) { October 2017 } Form
Interced Solutions

1.(a)(i) $6 + 2 \times 5 = 6 + 10$
 $= 16_a$

(ii) $5.6 \div 0.2 = \frac{56}{10} \div \frac{2}{10}$
 $= \frac{56}{10} \times \frac{10}{2}$
 $= 28_a$

(b) $5.785 \approx 5.8_a$

2(a) 20, 18, 16, 14, $14 - 2 = 12_a$

(b) $\frac{13}{20} \times \frac{5}{100} \% = 65 \%_a$

(c) $0.64 = \frac{64}{100} = \frac{16}{25}$

3(a) $\frac{3}{8} + \frac{2}{5} = \frac{3 \times 5}{8 \times 5} + \frac{2 \times 8}{5 \times 8}$
 $= \frac{15}{40} + \frac{16}{40}$
 $= \frac{15 + 16}{40} = \frac{31}{40}_a$

MODERN COLLEGE

SUCCESS DEPENDS ON THE PROPER USE OF TIME

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$$3(b) \quad 6 \text{ hours} = 6 \times 60 \text{ minutes} \\ = 360 \text{ minutes}$$

$$3(c) \quad 4\frac{2}{5} \text{ m} = 4\frac{2}{5} \times 100 \text{ cm} \\ = \frac{22}{5} \times 100 \text{ cm} \\ = 440 \text{ cm}$$

$$4(a)(i) \quad m^2 \times m^5 = m^{2+5} \\ = m^7$$

$$4(a)(ii) \quad (y^4)^2 = y^{4 \times 2} \\ = y^8$$

$$4(b) \quad 4^5 \div 4^3 = 4^{5-3} \\ = 4^2 \\ = 4 \times 4 \\ = 16$$

$$5(a) \quad 2a - 4b = 2 \times 5 - 4 \times -2 \\ = 10 - -8 \\ = 10 + 8 \\ = 18$$

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$$5(b)(i) \quad 2x + 4 = 2 \times x + 2 \times 2 \\ = 2(x + 2)$$

$$5(b)(ii) \quad 9m^2 - 25 = (3m)^2 - (5)^2 \\ = (3m + 5)(3m - 5)$$

$$7(a)(i) \quad A \cup B = \{s, p, i, n, e, r, a, d\}$$

$$7(a)(ii) \quad n(A \cap B) = 3 \quad A \cap B = \{s, p, e\}$$

$$7(b) \quad 3 - 4x \leq 11 \\ -3 + 4x \geq -11 \\ -3 + 3 + 4x \geq -11 + 3 \\ 4x \geq -8 \\ \frac{4x}{4} \geq \frac{-8}{4} \\ x \geq -2$$

$$7(c) \quad (x - y)^2 = x^2 + y^2 - 2xy \\ = 24 - 2 \times 5 \\ = 24 - 10 \\ = 14$$

$$8(a)(i) \quad \text{ext. } \angle = 180^\circ - 120^\circ \\ = 60^\circ$$

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$$\begin{aligned} 8(a)(i) \quad \text{no. of sides} &= \frac{360^\circ}{\text{ext. } \angle} \\ &= \frac{360^\circ}{60^\circ} \\ &= 6 \end{aligned}$$

$$\begin{aligned} 9(u) \quad 80\% &\rightarrow \text{Rs } 240 \\ 1\% &\rightarrow \text{Rs } \frac{240}{80} \\ 100\% &\rightarrow \text{Rs } \frac{240}{80} \times 100 \\ &= \text{Rs } 300 \end{aligned}$$

$$\begin{aligned} 10(a) \quad \sqrt{11\frac{1}{9}} &= \sqrt{\frac{100}{9}} \\ &= \frac{\sqrt{100}}{\sqrt{9}} \\ &= \frac{10}{3} \\ &= 3\frac{1}{3} \end{aligned}$$

$$\begin{aligned} 10(b) \quad \sqrt{0.07} &= \sqrt{\frac{7}{100}} \\ &= \frac{\sqrt{7}}{\sqrt{100}} \\ &= \frac{2.646}{10} \\ &= 0.2646 \end{aligned}$$

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11(a)
$$PR = \sqrt{13^2 - 12^2}$$
$$= \sqrt{169 - 144}$$
$$= \sqrt{25}$$
$$= 5$$

13(b)
$$2m - 5q = 3p$$
$$2m = 3p + 5q$$
$$m = \frac{3p + 5q}{2}$$

14(a) Area of sector = $\frac{\theta}{360} \times \pi r^2$
$$= \frac{45}{360} \times \frac{22}{7} \times 28 \times 28$$
$$= 308 \text{ cm}^2$$

15(a)
$$32 = 2 \times 2 \times 2 \times 2 \times 2$$
$$72 = 2 \times 2 \times 2 \times 3 \times 3$$
$$HCF = 2 \times 2 \times 2$$
$$= 8$$

15(b)
$$25 = 5 \times 5$$
$$30 = 2 \times 3 \times 5$$
$$L.C.M = 2 \times 3 \times 5 \times 5$$
$$= 150$$

∴ After 150 minutes the two buses will be at the jetty together.

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$$150 \text{ minutes} = 2 \text{ hr } 30 \text{ min}$$

$$\text{Time} : 1400 + 2 \text{ hr } 30 \text{ min.} \\ 1630$$

$$\begin{aligned} 16(b) \quad x &= 360 - (36 + 62) \\ &= 360 - 98 \\ &= 262^\circ \end{aligned}$$

$$\begin{aligned} 17(a) \quad \text{In } 3:2, 3 \text{ is } (1) \text{ more than } 2 \\ \text{Total} &= 3 + 2 = 5 \\ \therefore 1 &\rightarrow 12 \\ 5 &\rightarrow 5 \times 12 \\ &= 60 \text{ a} \end{aligned}$$

$$\begin{aligned} 18(b) \quad 5 \text{ men} &\rightarrow 30 \text{ days} \\ 1 \text{ man} &\rightarrow 30 \times 5 \text{ days} \\ 12 \text{ men} &\rightarrow \frac{30 \times 5}{12} \\ &= 12\frac{1}{2} \text{ days} \end{aligned}$$

$$\begin{aligned} 18(a) \quad 3(2m - 5n) - 4(3m - 2n) \\ 6m - 15n - 12m + 8n \\ 6m - 12m - 15n + 8n \\ -6m - 7n \end{aligned}$$

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$$18(b) \quad x^2 - 4x - 21 = 0$$

$$(x+3)(x-7) = 0$$

$$x+3=0 \quad \text{or} \quad x-7=0$$

$$x = -3 \quad \text{or} \quad x = 7$$

$$p = -21$$

$$c = -4$$

$$f = 3, -7$$

$$19(a) \quad \begin{array}{r} 02 \ 25 \ + \\ 16 \ 45 \\ 18 \ 70 \\ + 1 \ 60 = \\ \hline 19 \ 10 \end{array}$$

$$19(b) \quad \begin{array}{r} 19 \ 10 \ + \\ 6 \ 00 \\ \hline 25 \ 10 \\ - 24 \ 00 \\ \hline 1 \ 10 \end{array} \quad \text{Thursday}$$

$$20(a) \quad 60 \text{ km/h} \rightarrow 2\frac{1}{2} \text{ h}$$

$$1 \text{ km/h} \rightarrow 2\frac{1}{2} \times 60 \text{ h}$$

$$75 \text{ km/h} \rightarrow \frac{2\frac{1}{2} \times 60}{75} \text{ h}$$

$$= 2 \text{ h}$$

\therefore Less by 30 mins.

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Tutorial 1 MCQ.

1.

$$\frac{3}{4} \div \left(1\frac{1}{2}\right)^2$$

$$= \frac{3}{4} \div \left(\frac{3}{2}\right)^2$$

$$= \frac{3}{4} \div \frac{3}{2} \times \frac{3}{2}$$

$$= \frac{3}{4} \div \frac{9}{4}$$

$$= \frac{3}{4} \times \frac{4}{9}$$

$$= \frac{1}{3} \quad (B)$$

2.

$$4 \text{ cm} : 11 \text{ cm}$$

$$4 \text{ cm} : 100000 \text{ cm} \quad \rightarrow 4$$

$$1 : 25000 \quad (C)$$

3.

$$\text{int. } \angle = \frac{(n-2) \times 180}{n}$$

$$= \frac{(12-2) \times 180}{12}$$

$$= \frac{10 \times 180}{12}$$

$$= 150^\circ \quad (B)$$

4. Solve the equation $3-5x=18$

$$3-5x=18$$

$$-5x=18-3$$

$$-5x=15$$

$$x = \frac{15}{-5} = -3 \quad \text{Ans: A}$$

5. $6ab - 2ad - 3bc + cd$

$$(6ab - 2ad) - (3bc - cd)$$

$$2a(3b-d) - c(3b-d)$$

$$(3b-d)(2a-c) \quad (B)$$

6. $6 = 2 \times 3$

$$15 = 3 \times 5$$

$$90 = 2 \times 3 \times 3 \times 5$$

By T & E : $x = 3 \times 3 = 9$ odd.

$$3 \times 3 \times 5 = 45$$

$$\text{Ans: B}$$

7. $2 - 3(-2)^2$

$$2 - 3(-2 \times -2)$$

$$2 - 3(4)$$

$$2 - 12$$

$$-10$$

$$\text{Ans: C}$$

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8. $168 = 2^3 \times 3 \times 7$

$324 = 2^2 \times 3^4$

H.C.F. = $2^2 \times 3$
= 12

Ans: B

9. $\frac{1}{4} + \frac{2}{5} = \frac{1 \times 5}{4 \times 5} + \frac{2 \times 4}{5 \times 4}$

$= \frac{5+8}{20}$

$= \frac{13}{20}$ (given)

Fraction for himself: $1 - \frac{13}{20} = \frac{20}{20} - \frac{13}{20}$
 $= \frac{7}{20}$

Amount for himself: $\frac{7}{20} \times 2200 = \text{Rs } 770$

Ans: C

10. $T = \frac{\text{Distance}}{\text{Speed}}$

$= \frac{3/5 \text{ km}}{3 \text{ km/h.}}$

$= \frac{3}{5} \div 3 \text{ h.}$

$= \frac{3}{5} \times \frac{1}{3} = \frac{1}{5} \text{ h.}$

$= \frac{1}{5} \times 60 \text{ min} = 12 \text{ min}$

$600 \text{ m} = \frac{600 \text{ km}}{1000}$

$= \frac{3}{5} \text{ km.}$

Ans: D