Memorandum November 2016

Grade 9

Question 1

1.1 D
1.2 C
1.3 D
1.4 C
1.5 D
1.6 C
1.7 D
1.8 B
1.9 B
1.10 D

Question 2

2.1 12 ½ % of R3580

$= \frac{12,5}{100}$ x 3580

= R447, 50

2.2 method 1

15% of R80 000

$= \frac{15}{100}$ x 80 000

= R12 000

R80 000 + R12 000

= R92 000

OR

method 2

115% of R80 000

$= \frac{115}{100}$ x 80 000

= R92 000

2.3 method 1

10 % of R10 500

$= \frac{10}{100}$ x 10 500

= R1050

R10 500 – R 1050

= R9450

OR

method 2

90% of R10 500

$= \frac{90}{100}$ x 10 500

= R9450

2.4 $A = P(1 + in)$

= R3 500 (1 + 3 x 0,06)

= R3 500 (1,18)

= R4130,00

S I = R4130 –R3500

= R630

OR $S.I. = \frac{P.n.r}{100}$

$= \frac{R3500(3)(6)}{100}$

= R630

2.5 $A = P + SI$

A = R 4840

$A = P(1 + in)$

R4840 = $R4000(1 + n(\frac{3}{100}))$

R4840 = $R4000(1 + n(0,03))$

R4840 = $R4000 + R120n$

840 = 120n

$n = 7$

Number of years = 7

OR $S.I. = \frac{P.n.r}{100}$

R840 = $\frac{R4000(n)(3)}{100}$

84 000 = 12 000n

$n = \frac{84000}{12000}$

$n = 7$

number of years = 7

Question 3

3.1 $12a^{12}$

3.2 $\dfrac{48x^3y^3}{12x^4y^2}$

$= \dfrac{4y}{x}$

3.3 $\dfrac{1}{2^2} + 1$

$= 1\dfrac{1}{4}$

Question 4

4.1 Yes it is a polynomial

4.2. -1

4.3 $3x + 6x^4 - 2x^5 + 4x^0 - x^3$

$= 3(-1) + 6(-1)^4 - 2(-1)^5 + 4(-1)^0 - 9(-1)^3$

$= -3 + 6 + 2 + 4 + 9$

$= 18$

4.4 5^{th} degree

Question 5

5.1 $= a^3 - 3a^2 + a - (-2a^3 + 2a^2 - 4a)$

$= a^3 - 3a^2 + a + 2a^3 - 2a^2 + 4a$

$= 3a^3 - 5a^2 + 5a$

5.2.1 $= 3x - 3 - 4x + 2$

$= -x - 1$

5.2.2 $= (x+3)(x+3) + 4$

$= x^2 + 3x + 3x + 9 + 4$

$= x^2 + 6x + 13$

5.2.3 $= \frac{2x+1}{4} - \frac{2(x+2)}{4} - \frac{1}{4}$

$= \frac{2x+1-2(x+2)-1}{4}$

$= \frac{2x+1-2x-4-1}{4}$

$= \frac{-4}{4}$

$= -1$

Question 6

6.1 $6a^2(a-2)$

6.2 $(x+y)(2+t)$

6.3 $= 7(x^2 - 4)$

$= 7(x-2)(x+2)$

6.4 $(x+1)(x+6)$

Question 7

7.1
$$2x = -6$$
$$\frac{2x}{2} = \frac{-6}{2}$$
$$x = -3$$

7.2
$$5x - 4 = 2x + 8$$
$$5x - 2x = 8 + 4$$
$$3x = 12$$
$$\frac{3x}{3} = \frac{12}{3}$$
$$x = 4$$

7.3
$$\frac{x}{3} - 3 = 2$$
$$\frac{x}{3} = 2 + 3$$
$$3.\frac{x}{3} = 5.3$$
$$x = 15$$

7.4
$$3(x+3) = 2(2x-3)$$
$$3x + 9 = 4x - 6$$
$$3x - 4x = -6 - 9$$
$$-x = -15$$
$$x = 15$$

Question 8

8.3 Gradient = 3

$\frac{4-1}{1-0}$ or $\frac{1-(-2)}{0-(-1)}$ or $\frac{4-(-2)}{1-(-1)}$ or $\frac{1-4}{0-1}$

or $\frac{-2-1}{-1-0}$ or $\frac{-2-4}{-1-1}$

8.4 Gradient of parallel line = Gradient of line ABC

$= 3$

Equation : $y = 3x + 4$

Question 9

9.1 $z = 59° + 41°$ $(ext\angle of\ \Delta)$

$z = 100°$

OR $PRQ = 180° - (59° + 41°)$

$PRQ = 80°(\angle of\ \Delta)$

$\therefore z = 100°(\angle$ on a straight line)

9.2 $a = 180° - (118° + 32°)$ $(\angle$ on a straight line)

$a = 180° - 150°$

$a = 30°$

$b = 30°(alt\angle AD \square CB)$

$c = a + 32°(corrs.\angle AD \square CB)$ OR $c = 32° + b(ext.\angle of\ \Delta)$

$c = 30° + 32°$ $c = 32° + 30°$

$c = 62°$ $c = 62°$

OR $c = 180° - (32° + b + ACB(\angle of\ \Delta))$ $(\angle$ on a straight line)

$\therefore c = 62°$

9.3

$x = 50°(corrs.\angle BA \square CD)$

$a + 3a - 20° = 180°(co - \text{int}\angle)$

$4a = 180° + 20°$

$\frac{4a}{4} = \frac{200}{4}$

$a = 50°$

($\angle$ on a straight line)

$y = 180° - (x + a)$

$y = 180° - (50° + 50°)$

$y = 180° - 100°$

$y = 80°$

Question 10

10.1 $\square ACB \equiv \square STV(SAS)$

10.2 $BO = OD(given)$

$B = D(alt\angle AB \square DC)$

$A = C(alt\angle AB \square DC)$

$\square ABO \equiv \square DCO(SAA)$

Question 11

11.1.1 ` $A = \frac{1}{2}bxh$

$A = \frac{1}{2}bxh$

$A = \frac{1}{2}24cmx10cm$

$A = 120cm^2$

11.1.2 $A = \frac{1}{2}bxh$

$A = \frac{1}{2}48cmx20cm$

$A = 480cm^2$

The area has been enlarged by 4 times.

11.2 $p = 2l + 2b$

$46cm = 2(2x + 5) + 2(x + 6)$

$46cm = 4x + 10 + 2x + 6$

$46cm = 6x + 22$

$\frac{24}{6} = \frac{6x}{6}$

$4 = x$

$l = 2(4) + 5$

$l = 13cm$

$b = (4) + 6$

$b = 10cm$

$A = l \times b$

$A = 13cm \times 10cm$

$A = 130cm^2$

Question 12

12.1

Stem	leaf
6	2; 4; 5; 6; 7; 8; 9; 9; 9;
7	0; 1; 3; 3; 4; 8;

12.2 78 – 62 = 16

12.3 69

12.4 69

12.5 $1038 \div 15 = 69{,}2$

Question 13

13.1.1 $\frac{3}{5}$

13.1.2 $\frac{2}{5}$

13.2.1 $\frac{5}{12}$

13.2.2 $\frac{1}{11}$