SOUTH AFRICAN COLLEGE HIGH SCHOOL

Grade 9 **Mathematics**

February 2023 **PRACTICE TEST**

25 Marks 30 Mins **NAME: _____**

Simplify as far as possible:

1. $5p - 2p(p + 3)$

[2]

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

[3]

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

[5]

Factorise fully:

4. $\frac{4}{81} - x^6$

[2]

5. $a^3(x + y) - a(y + x)$

[3]

Simplify as far as possible:

8. $\frac{p^2 - 4p}{6p^2 - 4p^3} \div \frac{2p^2 - 18p + 40}{4p^2 - 9} \times \frac{3p^2 - 15p}{6p + 9}$

[**5**]

Solve for the x in each of the following equations:

9. $\frac{x}{3} - \frac{3x - 6}{6} = \frac{x - 6}{2} - 2$

[**5**]

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25 Marks 30 Mins **NAME: __MEMO_____**

Simplify as far as possible:

1. $5p - 2p(p + 3)$

$5p - 2p^2 - 6p$✓
$= -p - 2p^2$ ✓

[2]

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

$= 4t^2$✓ $- \frac{4}{3}t$✓ $+ \frac{1}{9}$✓

[3]

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

$= 2(x^2 - 6x + 9) - 8x + 12$✓ $- (x^2 - 4)$✓
$= 2x^2 - 12x + 18$✓ $- 8x + 12 - x^2 + 4$✓
$= x^2 - 20x + 22$✓

[5]

Factorise fully:

4. $\frac{4}{81} - x^6$

$= \left(\frac{2}{9} + x^3\right)\left(\frac{2}{9} - x^3\right)$ ✓✓

[2]

5. $a^3(x+y) - a(y+x)$

$= a^3(x+y) - a(x+y) * note\ no\ switch\ around\ as\ positive$
$= a(x+y)(a^2-1)$✓✓
$= a(x+y)(a-1)(a+1)$ ✓

[3]

Simplify as far as possible:

8. $\frac{p^2-4p}{6p^2-4p^3} \div \frac{2p^2-18p+40}{4p^2-9} \times \frac{3p^2-15p}{6p+9}$

$= \frac{p(p-4)}{2p^2(3-2p)} \times \frac{(2p-3)(2p+3)}{2(p^2-9p+20)} \times \frac{3p(p-5)}{3(2p+3)}$
$= \frac{p(p-4)}{2p^2(3-2p)} \times$ ✓ $\frac{(2p-3)(2p+3)}{2(p-4)(p-5)}$✓ $\times \frac{3p(p-5)}{3(2p+3)}$ ✓common factors
$= \frac{\cancel{p(p-4)}}{2\cancel{p^2(3-2p)}} \times$ ✓ $\frac{[-1](\cancel{2p-3})(\cancel{2p+3})}{2(\cancel{p-4})(\cancel{p-5})} \times \frac{\cancel{3p}(\cancel{p-5})}{\cancel{3(2p+3)}}$
$\therefore = -\frac{1}{4}$ ✓

[**6**]

Solve for the x in each of the following equations:

9. $\frac{x}{3} - \frac{3x-6}{6} = \frac{x-6}{2} - 2$

LCD = 6✓

$\mathbf{2x - (3x-6) = 3(x-6) - 12}$✓
$\mathbf{\therefore 2x - 3x + 6 = 3x - 18 - 12}$
$\mathbf{\therefore -4x = -36}$✓
$\mathbf{\therefore x = 9}$ ✓

[**4**]