

**TB(2A) Ch. 5 Algebraic Fractions and Formulae
Conventional Questions**

1. [16-17 S.2 Final Exam #2]

(a) Factorize $x^2 - x - 2$. (1 mark)

(b) Simplify $\frac{(x-1)^2}{x(x+1)} \times \frac{x}{x-1}$. (1 mark)

(c) Simplify $\frac{x+1}{x-1} - \frac{x-1}{x+1}$. (2 marks)

2. [16-17 S.2 Final Exam #4]

Simplify $\frac{(x^3y^4)^2}{x^8y^{-3}}$ and express the answer with positive indices. (3 marks)

3. [17-18 S.2 Mid Year Exam #7]

Simplify

(a) $\frac{3x}{2(6x-1)} - \frac{2}{6x-1}$, (2 marks)

(b) $\frac{a^2b + 2ab^2}{a - 2b} \div \frac{3a^2 + 6ab}{8b^2 - 2a^2}$. (3 marks)

4. [17-18 S.2 Mid Year Exam #8]

Consider the formula $C = \frac{9F}{5} + 32$.

(a) Make F the subject of the formula. (1 mark)

(b) If $C = 23$, find the value of F . (1 mark)

(c) If C is increased by 1, write down the change in F . (1 mark)

5. [17-18 S.2 S Test 1 #5]

Simplify

(a) $\frac{28m^2 - 7n^2}{2mn - n^2} \div \frac{7m}{n}$. (3 marks)

(b) $\frac{6rx + 24sx}{x - y} \div \frac{x^2(16s^2 + 8sr + r^2)}{x^2 - xy} + \frac{1}{r}$. (3 marks)

6. [17-18 S.4 Final Exam #1]

Make m the subject of $3A(m - 2B) = 4mC$. (3 marks)

7. [17-18 S.2 Final Exam #4]

(a) Simplify $\frac{2}{2-x} + \frac{3}{2(x-2)}$. (2 marks)

(b) Make x the subject of the formula $y = \frac{2}{2-x} + \frac{3}{2(x-2)}$. (2 marks)

8. [18-19 S.2 S Test 1 #3]

Simplify the following expressions.

(a) $\frac{3}{2(a+3)} - \frac{1}{6(a+3)}$ (2 marks)

(b) $\frac{10m^2 + 15m}{4m^2 - 9} \times \frac{2mn - 3n}{15n}$ (2 marks)

9. [18-19 S.2 Mid-year #3]

Simplify the following expressions.

(a) $\frac{3x}{x-2} + \frac{6}{2-x}$ (2 marks)

(b) $\frac{4x^2 + 20xy + 25y^2}{4x^2 - 25y^2} - \frac{2x + 5y}{2x - 5y}$ (2 marks)

10. [18-19 S.2 Mid-year #4]

Make a the subject of the formula $am = n(a + 1)$. (2 marks)

11. [19-20 S.2 Standardized test 1, #4]

Simplify the following expressions.

(a) $\frac{36x}{x-1} \div \frac{3}{2x-2}$ (1 mark)

(b) $\frac{y}{x+1} - \frac{xy}{x^2 + 2x + 1}$ (2 marks)

12. [19-20 S.2 Standardized test 1, #6]

Make M the subject of the formula $3M = 4R - \frac{8+M}{T}$. (3 marks)

13. [19-20 S.2 Mid-year exam, #4]

Consider the formula $\frac{1}{x} - \frac{2}{y} = 5$.

- (a) Make y the subject of the formula. (3 marks)
(b) Find the value of y if $x = -2$. (2 marks)

14. [19-20 S.2 Mid-year exam, #8]

Simplify the following expressions.

- (a) $\frac{r}{4r-4s} \times \frac{3s-3r}{6s}$ (2 marks)
(b) $\frac{a}{2(b-a)} - 1 + \frac{b}{3(a-b)}$ (3 marks)

15. [20-21 S.2 Mid-year exam, #7]

Simplify the following algebraic fractions.

- (a) $\frac{(1-2x)^2}{2x-1} \div \frac{3-6x}{2x}$ (2 marks)
(b) $\frac{ab-bc-cd+ad}{a^2-c^2}$ (3 marks)

16. [20-21 S.2 Mid-year exam, #10]

Consider the formula $4(p-2q+5) = -3(q-4p) + 1$.

- (a) Change the subject of the formula to q . (3 marks)
(b) If $p = 3$, find the value of q . (2 marks)
(c) Melanie claims that whenever the value of p is decreased by 10, the value of q will always be decreased by 16. Do you agree with her claim? Explain your answer. (2 marks)

17. [20-21 S. Final exam, #7]

Make p the subject of $\frac{2q(4p-5)}{p} = -3$. (3 marks)

18. [20-21 S. Final exam, #8]

Simplify $\frac{2}{3b+a} - \frac{1}{3b}$. (2 marks)

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