TB(2A) Ch. 3 Algebraic Fractions and Formulas
Conventional Questions

1. [13-14 S.2 Mid-year Exam #3]

Simplify $\dfrac{3x-13}{9x^2-169}$. **(2 marks)**

2. [13-14 S.2 Mid-year Exam #4]

(a) Make y the subject of the formula $a = bx - \dfrac{c}{y}$. **(2 marks)**

(b) Hence find the value of y if $a = 5$, $b = -2$, $c = -3$ and $x = 7$. **(2 marks)**

3. [13-14 S.2 Mid-year Exam #9]

Simplify $\dfrac{x^2+y^2}{x^2-y^2} \div \left(\dfrac{2x}{x-y} - 1\right)$. **(2 marks)**

4. [13-14 S.2 Mid-year Exam #10]

Simplify $\dfrac{1-x}{3x^2-29x+56} \div \dfrac{x-1}{6x^2-31x+40} + \dfrac{x^2-16x+54}{7-x}$. **(4 marks)**

5. [13-14 S.2 Final Exam #8]

Simplify

(a) $\dfrac{1}{6m(m-n)} - \dfrac{1}{3(n-m)}$, **(2 marks)**

(b) $\dfrac{a^3-1}{a^2-1} \div \left[\dfrac{(a+1)^2}{a} - 1\right]$. **(3 marks)**

6. [14-15 Mid-year Exam]

It is given that the temperature F in Fahrenheit scale (°F) can be calculated by the formula

$$F = \frac{9}{5}C + 32,$$

where C is the temperature in Celsius scale (°C).

(a) Make C the subject of the formula. **(1 mark)**

(b) On a day, Chloe measures her body temperature at 100.4°F. The normal body temperature should be 37°C or below. Explain whether she has a fever or not. **(2 marks)**

7. [14-15 Mid-year Exam]

(a) Simplify $\left(\dfrac{2x^2+12x+18}{x^2+5x+6} - 1\right) \times \dfrac{3x+6}{x^2-16}$. **(3 marks)**

(b) Hence, make x the subject of the formula

$$y=\left(\frac{2x^2+12x+18}{x^2+5x+6}-1\right)\div\left[\frac{(x+4)(x-4)}{3(x+2)}\times\frac{6x}{x-4}\right].$$ **(2 marks)**

8. [14-15 S.2 Final Exam #1b]

(b) Simplify $\frac{4}{y-4}+\frac{y}{y+4}$. **(2 marks)**

9. [14-15 S.2 Final Exam #5]

Make P the subject of the formula $\frac{r}{P+1}=\frac{h}{P+t^2}$. **(2 marks)**

10. [15-16 S.2 Mid-year Exam #6]

(a) Make r the subject of the formula. **(2 marks)**

(b) Find the value of r if A = 5, p = 2 and t = 3. **(2 marks)**

11. [15-16 Mid-year Exam #10]

(a) Simplify $\frac{2-11x}{(x+3)(1-2x)}-\frac{2x}{2x-1}$. **(3 marks)**

(b) Simplify $\frac{x^2-8x+16}{2x^2-5x-12}\times\frac{12(2x+3)}{4x^2-17x+4}\div\frac{12}{4x-1}$. **(3 marks)**

12. [15-16 Final Exam #2]

Simplify $\frac{x^2+3x-10}{x^2+4x-5}-\frac{2}{1-x}$. **(3 marks)**

13. [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)**

14. [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)**

15. [17-18 S.2 Mid Year Exam #7]

Simplify

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

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

16. [17-18 S.2 Mid Year Exam #8]

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

(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)**

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

Simplify

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

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

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

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

19. [17-18 S.2 Final Exam #4]

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

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

~ End ~