

TB(2A) Ch. 3 Identities
Conventional Questions

1. [16-17 S.2 Mid-year Exam #1]

Determine whether $2(x-3)+4(3-x)=-2(x-3)$ is an identity. (2 marks)

2. [16-17 S.2 Mid-year Exam #2]

Find the values of the constants A , B and C if $A(x^2-1)-B(1-x)+C \equiv 3x^2+14x-15$. (4 marks)

3. [16-17 S.2 Final Exam #9]

It is given that $(x-A)(x^2+1) \equiv x^3-Ax^2+x-2$ where A is a constant.

(a) Show that $A=2$. (2 marks)

(b) Factorize $x^3-2x^2+x-2+2x(x-2)$. (2 marks)

4. [17-18 S.2 Mid Year Exam #1]

If $(2x-5)(x+3)+P \equiv 2x^2+Qx-22$, where P and Q are constants, find the values of P and Q . (3 marks)

5. [18-19 S.2 S.Test 1 #2]

If $(x+5)^2 \equiv x(x+A)-A+7B$, find the values of A and B .

6. [18-19 S.2 S.Test 1 #4]

Expand the following expressions.

(a) $(a+3)^2$ (1 mark)

(b) $(2x-5y+3)^2$ (2 marks)

7. [18-19 S.2 S.Test 1 #5]

Determine whether $(x+2y)^2-(x-2y)^2=8xy$ is an identity. (2 marks)

8. [18-19 S.2 Mid-year #1]

Determine whether $(x-2)^2-2x+5=(x+3)^2$ is an identity. (2 marks)

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

If $Ax^2+B(x+1)-C \equiv 17+x(24-6x)$, where A , B and C are constants, find the values of A , B and C . (3 marks)

10. [18-19 S.2 Final Exam #1]

It is given that $(x + A)(2 - x) + 3x \equiv -x^2 + B$, where A and B are constants. Find A and B .

(3 marks)

11. [18-19 S.2 Final Exam #13] (Level 3 Question)

(a) Show that $\left(\frac{3}{7}a - \frac{2}{5}b\right)^3 = \frac{27}{343}a^3 - \frac{54}{245}a^2b + \frac{36}{175}ab^2 - \frac{8}{125}b^3$ is an identity. **(2 marks)**

(b) Using the identity in (a), find $\sqrt[3]{\frac{27}{343} + \frac{108}{245} + \frac{144}{175} + \frac{64}{125}}$. **(1 mark)**

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

Expand the following expressions.

(a) $(x - 8)^2$ **(1 mark)**

(b) $(a + 2b - 8)^2$ **(2 marks)**

13. [19-20 S.2 Standardized test 1, #3]

Determine whether $(x + 7)(x - 1) = x(x + 6) - 7$ is an identity. **(2 marks)**

14. [19-20 S.2 Standardized test 1, #7]

If $(2x + 3)^2 - (4x + 3)(x - A) \equiv B + x$, where A and B are constants, find the values of A and B . **(3 marks)**

15. [19-20 Mid-year exam, #2]

Prove that $6(x - 2) + x = 9 - 7(3 - x)$ is an identity. **(2 marks)**

16. [19-20 Mid-year exam, #3]

If $(y + 4)(y - 2) \equiv y^2 + Ay + 3 - B$, where A and B are constants, find the values of A and B . **(3 marks)**

17. [19-20 Mid-year exam, #12]

(a) Prove that $(u + v)^2(u - v)^2 = u^4 - 2u^2v^2 + v^4$. **(2 marks)**

(b) If $u^2 + v^2 = 10$ and $uv = 3$, find the value of $u^4 - 2u^2v^2 + v^4$. **(2 marks)**

18. [20-21 Mid-year exam, #2]

If A and B are constants such that $(x + A)(x + 1) \equiv (x + 2)^2 + B$, find the values of A and B .

(3 marks)

19. [20-21 Mid-year exam, #8]

Show that $a^3 + b^3 = (a + b)(a^2 - ab + b^2)$ is an identity.

(2 marks)

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