Name: Haziq B. Orie
Matrik No: 051PP18F1012

10/10

Tutorial 3

Question 1

a) $(2^n \times 8^{2n})^{\frac{1}{n}}$

$= (2^n)^{\frac{1}{n}} \times (8^{2n})^{\frac{1}{n}}$

$= 2^1 \times 8^2$

$= 2^1 \times 64$

$= 128$

(1)

b) $\frac{6^2 x^6}{6^5}$

$= \frac{x^6}{6^{5-2}}$

$= \frac{x^6}{6^3}$

$= \frac{x^6}{216}$

(1)

Question 2

Good

a) $\frac{4^{2x+1}}{4^{3+x} \times 4^{2+x}}$

$\frac{4^{2x+1}}{4^{3+x+2+x}}$

$= \frac{4^{2x+1}}{4^{5+2x}}$

$= \frac{1}{4^{5+2x-(2x+1)}}$

$= \frac{1}{44}$

$= \frac{1}{256}$

(2)

b) $\frac{7^{2(k+3)} \times 7^{3k+2} \times 7^{2-k}}{49^{5+3k}}$

$\frac{7^{2k+6} \times 7^{3k+2} \times 7^{2-k}}{(7^2)^{5+3k}}$

$\frac{7^{(2k+6+3k+2+2-k)}}{7^{10+6k}}$

$\frac{7^{4k+10}}{7^{10+6k}}$

$= 7^{4k+10-(10+6k)}$

$= 7^{-2k}$

$= \frac{1}{7^{2k}}$

$= \frac{1}{49^k}$

(2)

Question 3

a) $27^{2x+10} = 9^{3x}(3^{5x})$

$(3^3)^{2x+10} = (3^2)^{3x} \times (3)^{5x}$

$3^{6x+30} = 3^{6x} \times 3^{5x}$

$6x + 30 = 11$

$6x - 11x + 30 = 11x - 11x$

$-5x + 30 - 30 = -30$

$\frac{-5x}{-5} = \frac{-30}{-5}$

$x = 6$ //

b) $8^{3k} - 64^{5-k} = 0$

$8^{3k} - (8^2)^{5-k} = 0$

$3k - 10 + 2k = 0$

$3k - 10 + 10 + 2k = 0 + 10$

$3k + 2k = 10$

$\frac{5k}{5} = \frac{10}{5}$

$k = 2$ //

4

Name: Tang Ming Foo

Registration No: 05IPP18F1002

Programme / Section: IPP1

Tutorial 3

Question 1

Rewrite each expression as a single exponent.

(a) $(2^n \times 8^{2n})^{\frac{1}{n}}$

$= [2^n \times (2^3)^{2n}]^{\frac{1}{n}}$

$= (2^n \times 2^{6n})^{\frac{1}{n}}$

$= (2^n)^{\frac{1}{n}} \times (2^{6n})^{\frac{1}{n}}$

$= 2^1 \times 2^6$

$= 2^{1+6}$

$= 2^7$

(b) $\frac{6^2 x^6}{6^6}$

$= \frac{6^2}{6^5} \cdot x^6$

$= 6^{2-5} \cdot x^6$

$= 6^{-3} \cdot x^6$

$= \frac{1}{6^3}$

$= \frac{x^6}{6^3}$

Question 2

Simplify the operations using law of indices.

(a) $\frac{4^{2x+1}}{4^{3+x} \times 4^{2+x}}$

$= \frac{4^{2x+1}}{4^{3+x+2+x}}$

$= \frac{4^{2x+1}}{4^{5+2x}}$

$= 4^{5+2x-(2x+1)}$

$= \frac{1}{4^4}$

$= \frac{1}{256}$

(b) $\frac{7^{2(k+3)} \times 7^{3k+2} \times 7^{2-k}}{49^{5+3k}}$

$= \frac{7^{2k+6} \times 7^{3k+2} \times 7^{2-k}}{(7^2)^{5+3k}}$

$= \frac{7^{5k+8-(2-k)} \times 7^{2-k}}{7^{10+6k}}$

$= \frac{7^{4k+10}}{7^{10+6k}}$

$= 7^{4k+10-(4k+10)}$

$= \frac{1}{7^{2k}}$

$= \frac{1}{49^k}$

Question 3

Solve the equations involving indices.

(a) $27^{2x+10} = 9^{3x}(3^{5x})$

$(3^3)^{2x+10} = (3^2)^{3x} \cdot (3)^{5x}$

$3^{6x+30} = 3^{6x} \cdot 3^{5x}$

$3^{6x+30} = 3^{6x+5x}$

$6x + 30 = 11x$

$6x - 11x + 30 - 30 = 11x - 11x - 30$

(b) $8^{3k} - 64^{5-k} = 0$

Method 1)

$8^{3k} - (8^2)^{5-k} = 0$

$8^{3k} - (8^{10-2k}) = 0$

$3k - 10 + 2k = 0$

$3k - 10 + 10 + 2k = 10$

$k = 2$

Julia Bungie ak Tiben
051PP18F1029

Subject: MATHEMATICS

No: Friday

Date: 28/9/2018

8/8

Tutorial 3

Rewrite each expression as a single exponent.

a) $(2^n \times 8^{2n})^{\frac{1}{n}}$

$= [2^n \times (2^3)^{2n}]^{\frac{1}{n}}$

$= (2^n \times 2^{6n})^{\frac{1}{n}}$

$= 2^1 \times 2^6$

$= 2^{1+6}$

$= 2^7$

1

b) $\frac{6^2 x^6}{6^5}$

$= 6^{2-5} x^6$

$= 6^{-3} x^6$

$= \frac{1}{6^3} x^6$

$= \frac{x^6}{6^3}$

1

Question 2

Simplify the operations using law of indices.

a) $\frac{4^{2x+1}}{4^{3+x} \times 4^{2+x}}$

$= \frac{4^{2x+1}}{4^{3+x+2+x}}$ $= \frac{4^{2x+1}}{4^{5+2x-(2x+1)}}$ $= \frac{1}{256}$

$= \frac{4^{2x+1}}{4^{5+2x}}$ $= \frac{1}{44}$

2

b) $\frac{7^{2(k+3)} \times 7^{3k+2} \times 7^{2-k}}{49^{5+3k}}$

$= \frac{7^{2k+6} \times 7^{3+2} \times 7^{2-k}}{(7^2)^{5+3k}}$ $= \frac{1}{7^{10+6k-(4k+10)}}$

$= \frac{7^{5k+8} \times 7^{2-k}}{7^{10+6k}}$ $= \frac{1}{7^{2k}}$

$= \frac{7^{4k+10}}{7^{10+6k}}$ $= \frac{1}{7^{2k}}$

2

Subject:..... No:.....

Date: . .

Question 3

(a) $27^{2x+10} = 9^{3x}(3^{5x})$

$27^{2x+10} = 27^{3x+5x}$

$27^{2x+10} = 27^{8x}$

$2x + 10 = 8x$

$2x - 2x + 10 = 8x - 2x$

$\frac{10}{6} = \frac{6x}{6}$

$x = \frac{5}{3}$

(b) $8^{3k} - 64^{5-k} = 0$

$(2^3)^{3k} = (2^6)^{5-k}$

$2^{9k} = 2^{30-6k}$

$9k = 30 - 6k + 6k$

$9k + 6k = 30$

$\frac{15k}{15} = \frac{30}{15}$

$k = 2$

(2)

NURAMIRAH BT MOHD BAKRI · 051PP18F1003

Subject: No: Date:

6/10

Tutorial 3

Question 1

Rewrite each expression as a single exponent.

a) $(2^n \times 8^{2n})^{\frac{1}{n}}$

$= \left[2^n \times (2^3)^{2n}\right]^{\frac{1}{n}}$

$= (2^n \times 6^{6n})^{\frac{1}{n}}$

$= (2^n)^{\frac{1}{n}} \times (2^{6n})^{\frac{1}{n}}$

$= 2^1 \times 2^6$

$= 2^{1+6} = 2^7$ ✓ (1)

b) $\frac{6^2 x^6}{6^5}$

$= \frac{6^2}{6^5} x^6$

$= 6^{2-5} x^6$

$= 6^{-3} x^6$

$= \frac{1}{6^3} x^6$

$= \frac{x^6}{6^3}$ ✓ (1)

Question 2

Simplify the operations using law of indices.

a) $\frac{4^{2x+1}}{4^{3+x} \times 4^{2+x}}$

$= \frac{4^{2x+1}}{4^{3+x} \times 4^{2+x}}$

$= \frac{4^{2x+1}}{4^{5+2x}}$

$= \frac{1}{4^{5+2x-(2x+1)}}$

$= \frac{1}{4^4}$

$= \frac{1}{256}$ ✓ (2)

b) $\frac{7^{2(k+3)} \times 7^{3k+2} \times 7^{2-k}}{49^{5+3k}}$

$= \frac{7^{2k+6} \times 7^{3k+2} \times 7^{2-k}}{(7^2)^{5+3k}}$

$= \frac{7^{2k+6+3k+2+2-k}}{7^{10+6k}}$

$= \frac{7^{4k+10}}{7^{10+6k}}$

$= 7^{4k+10-(10+6k)}$

$= 7^{-2k}$

$= \frac{1}{7^{2k}}$

$= \frac{1}{49^k}$ ✓ (2)

Subject:..... No:.....

Date: . .

Question 3

solve the equations involving indices

a) $27^{2x+10} = 9^{3x}(3^{5x})$

$27^{2x+10} = 27^{3x+5x}$

$27^{2x+10} = 27^{8x}$

$27^{2x+8x+10}$

$= 27^{10x+10}$

$= \frac{1}{27^{10x+10}}$

b) $8^{3k} - 64^{5-k} = 0$

$8^{3k} - 64^{5k} = 0$

$8^{3k} - 8^{10-2k} = 0$

$8^{3k-2k+10} = 0$

$8^{k+10} = 10$

$\frac{1}{8^{k+110}}$

Victoria Yung (0519P181007)

No. Tutorial 3 DATE:

6/10

Rewrite each expression as a single exponet.

a) $(2n^2 \times 8^{2n})^{\frac{1}{n}}$

$= [2n^2 \times (2^3)^{2n}]^{\frac{1}{n}}$

$= (2n^2 \times 2^{6n})^{\frac{1}{n}}$

$= (2n)^{\frac{1}{n}} \times (2^{6n})^{\frac{1}{n}}$

$= 2^1 \times 2^6$

$= 2^{1+6}$

$= 2^7$

1

b) $\frac{6^2 x^6}{6^5}$

$= \frac{6^2}{6^5} \cdot x^6$

$= 6^{2-5} x^6$

$= 6^{2-5} x^6$

$= 6^{-3} x^6$

$= \frac{1}{6^3} x^6$

$= \frac{x^6}{6^3}$

1

Question 2

Simplify the questions using law of indices.

a) $\frac{4^{2x+1}}{4^{3+x} \times 4^{2+2x}}$

$= \frac{4^{2x+1}}{4^{3+x+2+2x}}$

$= \frac{4^{2x+1}}{4^{5+2x}}$

$= \frac{1}{4^4}$

$= \frac{1}{256}$

2

b) $\frac{7^{2(k+3)} \times 7^{3k+2} \times 7^{2-k}}{49^{5+3k}}$

$= \frac{7^{(2k+3)} + 7^{(3k+2)} + 7^{(2-k)}}{7^{10+6k}}$

$= \frac{7^{(2k+6)} + (3k+2)(-2k)}{7^{10+6k}}$

4

Solve the equations involving indices.

a) $27^{2x+10} = 9^{3x}(3^{5x})$

$27^{2x+10} = 3^{2(3x)}(3^{5x})$

$(3^3)^{2x+10} = 3^{2(3x)}(3^{5x})$

$6x + 30 = 6x + 5x$

$6x + 30 = 11x$

$6x - 6x + 30 = 11x - 6$

$\frac{30}{5} = \frac{5x}{5}$

$x = \frac{30}{5}$

$x = 6$

b) $8^{3k} - 64^{5-k} = 0$

$8^{3k} - (8^2)^{5-k} = 0$

$8^{3k} - 8^{10-2k} = 0$

$3^{K-10-2k} = 0$

$-2 - 10 = 10$

Tutorial 5

Subject:..... No:.....

Date:

Cherie Lipun (051PP18F1027)

6/6

Question 1

Rewrite each expression as a single exponent.

a) $(2^n \times 8^{2n})^{\frac{1}{n}}$

$= [2^n \times (2^3)^{2n}]^{\frac{1}{n}}$

$= (2^n \times 2^{6n})^{\frac{1}{n}}$

$= (2^n)^{\frac{1}{n}} \times (2^{6n})^{\frac{1}{n}}$

$= 2^1 \times 2^6$

$= 2^{1+6}$

$= 2^7$ //

(1)

b) $\frac{6^2 x^6}{6^5}$

$= \frac{6^2}{6^5} \times x^6$

$= 6^{2-5} x^6$

$= 6^{-3} x^6$

$= \frac{1}{6^3} x^6$

$= \frac{x^6}{6^3}$ //

(1)

Question 2

Simplify the operations using law of indices.

a) $\frac{4^{2x+1}}{4^{3+x} \times 4^{2+x}}$

$= \frac{4^{2x+1}}{4^{3+x+2+x}}$

$= \frac{4^{2x+1}}{4^{5+2x}}$

$= \frac{1}{4^{5+2x-(-2x+1)}}$

$= \frac{1}{4^4}$

$= \frac{1}{256}$ //

(2)

No:.....

Subject:..... Date: . .

b) $\frac{7^{2(k+3)} \times 7^{3k+2} \times 7^{2-k}}{49^{5+3k}}$

$= \frac{7^{2(k+3)} * 7^{3k+2} \times 7^{2-k}}{7^{2(5+3k)}}$

$= \frac{7^{2k+6} + 7^{3k+2} + 7^{2-k}}{7^{10+6k}}$

$= \frac{7^{(2k+6)} + (3k+2)(2-k)}{7^{10+6k}}$

$= \frac{14k+6 + 3k+2+2-k}{7^{10+6k}}$

$=$

Question 3

Solve the equations involving indices.

a) $27^{2x+10} = 9^{3x}(3^{5x})$

$= (3^3)^{2x+10} = 3^{2(3x)}(3^{5x})$

$= 6x + 30 = 6x + 5x$

$= 6x + 30 = 11x$

$= 6x - 6x + 30 = 11x - 6x$

$= \frac{30}{5} = \frac{5x}{5}$

$= x = 6$

b) $8^{3k} - 64^{5-k} = 0$

$= 8^{3k} - (8^2)^{5-k} = 0$

$= 3k - 10 - k = 0$

$= k - 3k - 10 = 0$

$= -2 - 10 = 0$

Tutorial 3 Victoria Sena (051PP18F1021)

No:

Subject: Date:

Question 1

(a) $(2^n \times 8^{2n})^{\frac{1}{n}}$

$= 27^{2x+10} = 9^{3x}(3^{5x})$

$27^{2x+10} = 3^2(3^{5x})$

$(6)^{2x+10} = 3^2(3^{5x})$

$6x + 30 = 6x + 5x$

$6x + 30 = 11x$

$6x - 6x + 30 = 11x - 6$

$\frac{30}{5} = \frac{5x}{5}$

$x = 6$

(b) $\frac{6^2 \times 6}{6^5}$

Question 2

(a) $\frac{4^{2x+1}}{4^{3+x} \times 4^{2+x}}$

$= \frac{4^{2x+1}}{4^{3+x+2+x}}$

$= \frac{4^{2x+1}}{4^{5+2x}}$

$= \frac{1}{4^{5+2x-(2x+1)}}$

$= \frac{1}{4^4} = \frac{1}{256}$

(b) $\frac{7^{2(k+3)} \times 7^{3k+2} \times 7^{2-k}}{49^{5+3k}}$

$= \frac{7^{2(k+3)} \times 7^{3k+2} \times 7^{2-k}}{7^{2(5+3k)}}$

$= \frac{7^{(2k+6)} + 7^{3k+2} + 7^{(2k)}}{7^{0+6+k}}$

$= \frac{7^{(2k+6)+(3k+2)+(2-k)}}{7^{10+6k}}$

Question 3

(a) $27^{2x+10} = 9^{3x}(3^{5x})$

(b) $8^{3k} - 64^{5-k} = 0$

ZYANA VECCARY (05IPPI8F1081)

TUTORIAL 3

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QUESTION 1

a). $(2^n \times 8^{2n})^{\frac{1}{n}}$

A. $(2^n)^{\frac{1}{n}} \times (8^{2n})^{\frac{1}{n}}$

$= 2^1 \times 8^1$

$= 2^1 \times 2^{3(1)}$

$= 2^{1+3}$

$= 2^4$

$= 2 \times 2 \times 2 \times 2$

$= 16$ #

b). $\frac{6^2 \times 6^6}{6^5}$

A. $\frac{6^2 \times 6^6}{6^5} = \frac{6^{2+6}}{6^5}$

$= 6^{8-5}$

$= 6^3$

$= 6 \times 6 \times 6$

$= 216$ #

QUESTION 2

a). $\frac{4^{2x+1}}{4^{3+x} + 4^{2+x}}$

A. $\frac{4^{2x+1}}{4^{3+x+2+x}}$

$= 4^{2x+1-(5+2x)}$

$= 4^{2x+1-5-2x}$

$= 4^{2x-2x+1-5}$

$= 4^{-4}$

$= \frac{1}{4^4}$

$= \frac{1}{256}$ #

b). $\frac{7^{2(k+3)} \times 7^{3k+2} \times 7^{2-k}}{49^{5+3k}}$

A. $= \frac{7^{2k+6} \times 7^{3k+2} \times 7^{2-k}}{7^{2(5+3k)}} = 0$

$= \frac{7^{2k+6+3k+2+2-k}}{7^{10+6k}} = 0$

$= \frac{2k+3k-k+6+2+2}{10+6k} = 6$

$= \frac{4k+10}{10+6k} = 6$

$= 4k+10-(10+6k) = 6$

$= 4k+10-10-6k = 0$

$4k-6k = 0$

$\frac{-2k}{-2} = \frac{0}{-2}$ $\quad k = 0$

Question 3

a). $27^{2x+10} = 9^{3x}(3^{5x})$

A. $27^{2x+10} = 27^{3x+5x}$

$2x+10 = 8x$

$2x+10-10 = 8x-10$

$2x-8x = 8x-8x-10$

$\frac{-6x}{-6} = \frac{-10}{-6}$

$x = \frac{5}{3}$

b). $8^{3k} - 64^{5-k} = 0$

A. $8^{3k} = 64^{5-k}$

$8^{3k} = 8^{2(5-k)}$

$8^{3k} = 8^{10-2k}$

$3k = 10-2k$

$3k+2k = 10-2k+2k$

$\frac{5k}{5} = \frac{10}{5}$

Tutorial 3 Victoria Sena (05PP18F1021)

No:

Subject: Date:

Question 1

(a) $(2^n \times 8^{2n})^{\frac{1}{n}}$

$= 27^{2x+10} = 9^{3x}(3^{5x})$

$27^{2x+16} = 3^2(3^{5x})$

$(6)^{2x+10} = 3^2(3^{5x})$

$6x + 30 = 6x + 5x$

$6x + 30 = 11x$

$6x - 6x + 30 = 11x - 6$

$\frac{30}{5} = \frac{5x}{5}$

$x = 6$

(b) $\frac{6^2 \times 6^6}{6^5}$

Question 2

(a) $\frac{4^{2x+1}}{4^{3+x} \times 4^{2+x}}$

$= \frac{4^{2x+1}}{4^{3+x+2+x}}$

$= \frac{4^{2x+1}}{4^{5+2x}}$

$= \frac{1}{4^{5+2x-(2x+1)}}$

$= \frac{1}{4^4} = \frac{1}{256}$

(b) $\frac{7^{2(k+3)} \times 7^{3k+2} \times 7^{2-k}}{49^{5+3k}}$

$= \frac{7^{2(k+3)} \times 7^{3k+2} \times 7^{2-k}}{7^{2(5+3k)}}$

$= \frac{7^{(2k+6)} + 7^{3k+2} + 7^{(2k)}}{7^{0+6+k}}$

$= \frac{7^{(2k+6)+(3k+2)+(2-k)}}{7^{10+6k}}$

Question 3

(a) $27^{2x+10} = 9^{3x}(3^{5x})$

(b) $8^{3k} - 64^{5-k} = 0$

Subject: Izyan Nadilah 05iPP18F1016

No: Tuesday

Date: 1 10 18

Tutorial 3

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Question 1

Rewrite each expression as a single exponent

a) $(2^n \times 8^{2n})^{\frac{1}{n}}$

$= [2n^3 \times (2^3)^{2n}]^{\frac{1}{n}}$

$= (2^n)^{\frac{1}{n}} \times (2^{6n})^{\frac{1}{n}}$

$= 2^1 \times 2^6$

$= 2^{1+6}$

$= 2^7$

b) $\frac{6^2 x^6}{6^5}$

$= \frac{6^2}{6^5} x^6$

$= 6^{2-5} x^6$

$= 6^{-3} x^6$

$= \frac{1}{6^3} x^6$

$= \frac{x^6}{6^3}$

Question 2

Simplify the operations using law of indices

a) $\frac{4^{2x+1}}{4^{3+x} \times 4^{2+x}}$

$= \frac{4^{2x+1}}{4^{3+x+2+x}}$

$= \frac{4^{2x+1}}{4^{5+2x}}$

$= \frac{1}{4^{5+2x-(2x+1)}}$

$= \frac{1}{4^4}$

b) $\frac{7^{2(k+3)} \times 7^{3k+2} \times 7^{2-k}}{49^{5+3k}}$

$= \frac{7^{(2k+3)} + 7^{(3k+2)} + 7^{(2-k)}}{7^{6+6k}}$

$= \frac{7^{(2k+6)} + (3k+2)(-2k)}{7^{10+6k}}$

Subject: No:

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Question 3

Solve the equations involving indices

a) $27^{2x+10} = 9^{3x}(3^{5x})$

$27^{2x+10} = 27^{3x+5x}$

$27^{2x+10} = 27^{8x}$

$27^{2x+8x+10}$

27^{10x+10}

$\frac{1}{27^{10x+10}}$

b) $8^{3k} - 64^{5-k} = 0$

$8^{3k} - (8^2)^{5-k} = 0$

$8^{3k} - 8^{10-2k} = 0$

$8^{3k-2k+10} = 0$

$8^{k+10} = 0$

$\frac{1}{8^{k+10}}$

No: Mathematic PBM1035 Tutorial 3 Date:

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Question 1

Rewrite each expression in single exponent

a) $(2^n \times 8^{2n})^{\frac{1}{n}}$ $= (2^n \times (2^3)^{2n})^{\frac{1}{n}}$

$= (2^n \times 6^n)^{\frac{1}{n}}$

$= 2^1 \times 2^6$

$= 2^7$ (1)

b) $\frac{6^2 x^6}{6^5}$

$= 6^{2-5} x^6$

$= 6^{-3} x^6$

$= \frac{1}{6^3} x^6$

$= \frac{x^6}{6^3}$ (1)

Question 2 simplify the operation using law of indices

a) $\frac{4^{2x+1}}{4^{3+x} \times 4^{2+x}}$

$= \frac{4^{2x+1}}{4^{3+x+2+x}}$

$= \frac{4^{2x+1}}{4^{5+2x}}$

$= 4^{2x+1-(5+2x)}$

$= 4^{-4}$

$= \frac{1}{4^4}$ (2)

b) $\frac{7^{2(x+3)} \times 7^{3x+2} \times 7^{2-k}}{49^{5+3x}}$

$= \frac{7^{2x+6} \times 7^{3x+2} \times 7^{2-k}}{49^{5+3x}}$

$= \frac{7^{2x+6-3x+2-2-k}}{49^{5+3x}}$

$= \frac{7^{-2x+2}}{(7^2)^{5+3k}}$

$= \frac{7^{-2x+2}}{7^{10+6k}}$

$= -2x+2-(10+6k)$

No: ..... Date: .....

Question 3 : solve the following indices

a) $27^{2x+10} = 9^{3x}(3^{5x})$

$27^{2x+10} = 27^{3x+5x}$

$2x+10 = 3x+5x$

$2x+10 = 8x$

$2x+10-8x = 8x-8x$

$\frac{-6x}{-6} = \frac{-10}{-6}$

$x = \frac{10}{6}$

b) $8^{3k} - 64^{5-k} = 0$

$(2^3)^{3k} = (2^6)^{5-k}$

$9k = 30-6k$

$9k+6k = 30-6k+6k$

$\frac{15k}{15} = \frac{30}{15}$

$k = 2$

(2)