Process Standards Rubric

Algebra

Expectations Instructional programs from pre-kindergarten through grade 12 should enable all students to:		Exercise															Drill Sheet 1	Drill Sheet 2	Review A	Review B	Review C
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15					
GOAL 1: Problem Solving	• build new mathematical knowledge through problem solving; • solve problems that arise in mathematics and in other contexts; • apply and adapt a variety of appropriate strategies to solve problems; • monitor and reflect on the process of mathematical problem solving.	✓ ✓ ✓ ✓	✓ ✓ ✓ ✓			✓ ✓ ✓ ✓		✓ ✓ ✓ ✓	✓ ✓	✓ ✓ ✓ ✓		✓ ✓ ✓ ✓		✓ ✓ ✓	✓ ✓	✓ ✓ ✓				✓ ✓ ✓ ✓	✓ ✓ ✓ ✓
GOAL 2: Reasoning & Proof	• recognize reasoning and proof as fundamental aspects of mathematics; • make and investigate mathematical conjectures; • develop and evaluate mathematical arguments and proofs; • select and use various types of reasoning and methods of proof.	✓ ✓ ✓ ✓	✓ ✓ ✓ ✓	✓ ✓	✓ ✓	✓ ✓ ✓	✓ ✓	✓ ✓ ✓ ✓	✓ ✓	✓ ✓ ✓ ✓	✓ ✓	✓ ✓ ✓ ✓	✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓ ✓	✓ ✓ ✓ ✓	✓ ✓ ✓ ✓
GOAL 3: Communication	• organize and consolidate their mathematical thinking through communication; • communicate their mathematical thinking coherently and clearly to peers, teachers, and others; • analyze and evaluate the mathematical thinking and strategies of others; • use the language of mathematics to express mathematical ideas precisely.	✓ ✓ ✓ ✓	✓ ✓ ✓ ✓	✓ ✓	✓ ✓	✓ ✓ ✓	✓	✓ ✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓ ✓	✓	✓ ✓ ✓ ✓	✓	✓	✓ ✓	✓ ✓ ✓ ✓	✓ ✓	✓	✓ ✓	✓ ✓ ✓ ✓	✓ ✓ ✓ ✓
GOAL 4: Connections	• recognize and use connections among mathematical ideas; • understand how mathematical ideas interconnect and build on one another to produce a coherent whole; • recognize and apply mathematics in contexts outside of mathematics.	✓ ✓ ✓	✓ ✓ ✓	✓ ✓		✓ ✓ ✓	✓ ✓	✓ ✓ ✓	✓ ✓	✓ ✓ ✓	✓ ✓	✓ ✓ ✓	✓ ✓	✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓ ✓	✓ ✓ ✓
GOAL 5: Representation	• create and use representations to organize, record, and communicate mathematical ideas; • select, apply, and translate among mathematical representations to solve problems; • use representations to model and interpret physical, social, and mathematical phenomena.	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓

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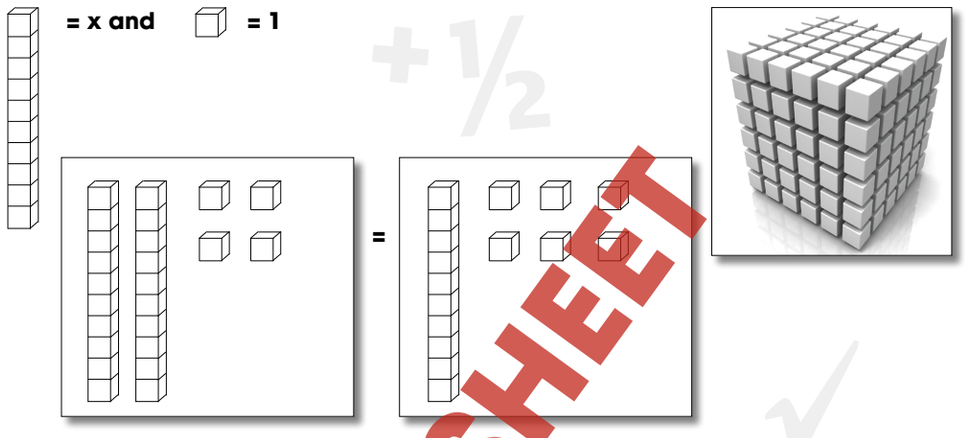
NAME: _____

1+2 Task Sheet

Task Sheet 13

13. ▯ = x and ▯ = 1

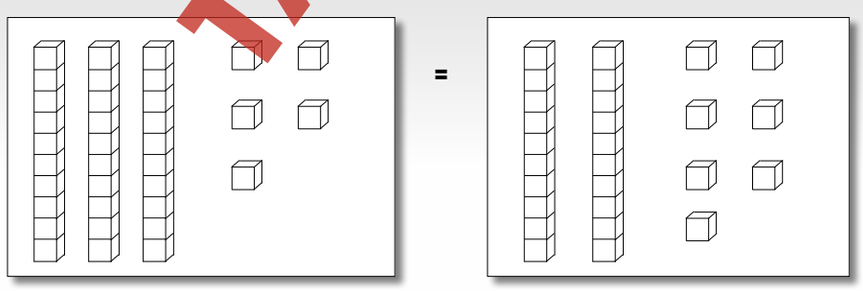


This can be represented as 2x + 4 = x + 6

a) **Remove the same number of tiles from each side, making sure that you keep both sides in balance. What do you have left?**

i) 2x = 1 ii) x = 2 iii) 4 + x = 2x iv) 2 + 2x = 0

b) **How might the following be written as an equation?**



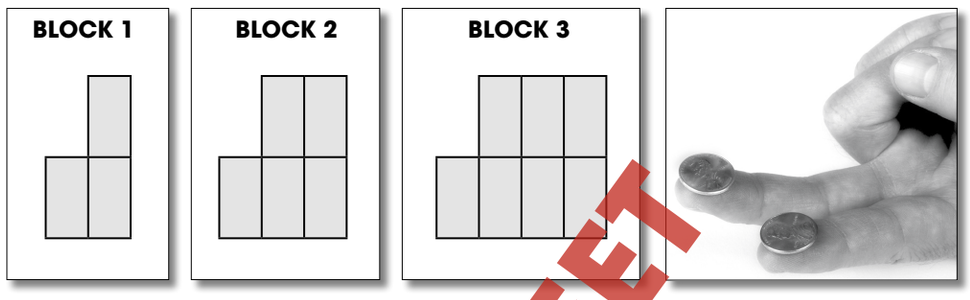
i) 3x + 7 = 2x + 7 ii) 2x + 7 = 3 x + 4 iii) 3x + 4 = 2x – 7 iv) 3x + 5 = 2x + 7

TASK SHEET

1+2 Task Sheet NAME: _____

Task Sheet 14

14.



a) **If the pattern in Blocks 1, 2, and 3 continue, how many rectangles would it take to make the 5th Block?**

Answer:_____

b) **How many rectangles would it take to make the 10th Block?**

Answer:_____

c) **I have .42¢ in my pocket. I have only dimes and pennies. What coins might I have? Complete the chart below showing the possibilities.**

Dimes	Pennies	Total

Explore With Technology

The website http://www.coolmath.com, has a very helpful Algebra section. It has a lot of great tutorials and fun activities – even a graphing calculator that students can experiment with. Play around on the site, and try your hand at some algebraic problems.

TASK SHEET

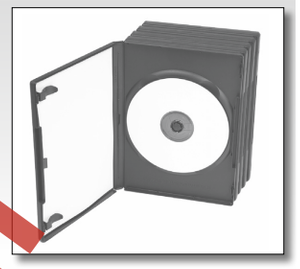
NAME: _____

1+2 Task Sheet

Task Sheet 15

15a) **This table shows how much it costs to rent a DVD from *Paul's Movies and Games*. Choose which equation matches the table.**

Days Rented **(x)**	0	1	2	3	4
Cost to Rent **(C)**	4	6	8	10	12



i) C = 2x + 4 ii) C = x + 2 iii) C = 0x + 2 iv) C = x + 4

b) **Maria rented a movie from Paul's Movies and Games. Her bill came to $8. Plot this amount on the line below.**

-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9

c) **Solve the following equations:**

i) x + 17 = 72 ii) x – 43 = 12 iii) 99 – x = 40

d) **What is the solution to this equation?**
4x - 6 = 2x + 30

i) x = 14 ii) x = 12 iii) x = 18 iv) x = 32

Explore With Technology

Order of operations is very important when performing a mathematical calculation. Remember that in an equation, multiplication and division are performed before addition and subtraction. Using a calculator, perform the underlined parts in the following two equations first — then record your answers to both. What a difference this can make!!

- 3 + 5 × 2 =
- 3 + 5 × 2 =
- 7 – 2 × 3 =
- 7 – 2 × 3 =

TASK SHEET

Drill Sheet NAME: _____

Drill Sheet 1

a) **Determine the value of ▯ in the following equations. Show your work.**

i) 4 + ▯ = 13 ii) 17 - ▯ = 9 iii) 9 × ▯ = 63 iv) ▯ ÷ 7 = 8

b) **Graph on the accompanying number line.**
x = 7

-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9

c) **What is the missing term in the increasing pattern below?**

199, 213, 227, ____, 255

d) **Solve showing your work:**

i) 3x - 2 = 7 ii) 7x + 3 = 27 – 3 iii) 4x = 32

iv) 4x = 7 + 3 × 3 v) x ÷ 4 = 24 vi) 4 + 16 ÷ 4 = x

DRILL SHEET

NAME: _____

Drill Sheet

Drill Sheet 2

a) **A pattern is shown below. Each term decreases by the same amount.**

80, 71, 62, 53 ...

What is the seventh term in this pattern?

Answer:_____

b) **Solve the following equations if x = 6. Show your work.**

i) x + 4 = ii) 9 – x + 2x = iii) 4x – (5 × 5 – 17) =

c) **What is the average of the following marks out of 100?**

76, 82, 91, 66, 100

Show your work.

Answer:_____

d) **Graph on the accompanying number line.**

-2 < x < 4

-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9

DRILL SHEET

Review Sheet

NAME: _____

Review A

a) **Determine the value of ☐ in the following equations. Show your work.**

i) ☐ + 5 = 11 ii) 12 - ☐ = 6 iii) 7 × 3 = ☐ iv) 10 - ☐ = 3 × 2

b) **Graph on the accompanying number line.**

x = 9

-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9

c) **What is the missing term in the increasing pattern below?**

24, 26, ___, 30, 32 . . .

d) **= x and = 1.**

How might the following be written as an equation?

i) 2x – 2 = 1 x + 2 ii) 3x + 1 = 2x + 3 iii) 2x + 2 = 1x + 3 iv) 2x + 2 = 3x + 3

REVIEW

NAME: _____

Review Sheet

Review B

a) **Solve the following equations:**

i) 21 - x = 12 ii) x × 7 = 56 iii) x ÷ 12 = 5

b) **If x = 8, solve these equations.**

i) 2x - 7 = ii) 4 × x = iii) 3x + 1 =

c) **Graph on the accompanying number line. -8 < x < 9**

-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9

d) **Jason's dad rents a table saw to help build a dog house for Rover. This table shows how much it costs to rent the table saw from Moe's Rentals. Choose which equation matches the table.**

Days Rented **(x)**	0	1	2	3	4
Cost to Rent **(C)**	10	15	20	25	30

i) C = 5x + 10 ii) C = 10x + 5 iii) C = x + 15 iv) C = 15x + 10

e) **Find the average for Julia's bowling scores: 156, 116, 212, 96**

Show Your Work

Answer: _____

REVIEW

Graphing and Equations

a) **Graph each on the accompanying number line.**

-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9

-9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9

b) **Round each of the following numbers to the nearest hundred.**

= x = 1

c) **How might the following be written as an equation?**

=

COLOR POSTERS

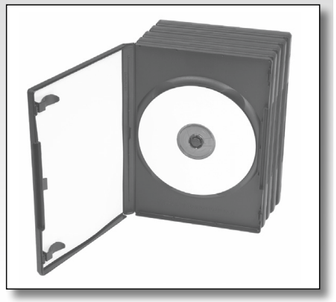
NAME: _____

1 + 2 Task Sheet

Task Sheet 15

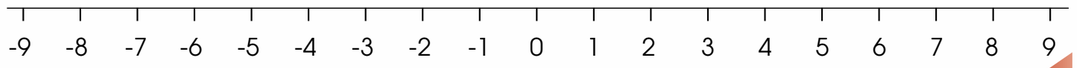
15a) **This table shows how much it costs to rent a DVD from *Paul's Movies and Games*. Choose which equation matches the table.**

Days Rented **(x)**	0	1	2	3	4
Cost to Rent **(C)**	4	6	8	10	12



i) C = 2x + 4 ii) C = x + 2 iii) C = 0x + 2 iv) C = x + 4

b) **Maria rented a movie from Paul's Movies and Games. Her bill came to $8. Plot this amount on the line below.**



c) **Solve the following equations:**

i) x + 17 = 72 ii) x – 43 = 12 iii) 99 – x = 40

d) **What is the solution to this equation?**
4x - 6 = 2x + 30

i) x = 14 ii) x = 12 iii) x = 18 iv) x = 32

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- 3 + 5 × 2 =
- 3 + 5 × 2 =
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15.

a) i) C = 2x + 4

b) Label the number 8 on the line.

c) i) x + 17 = 72
x = 55

ii) x – 43 = 12
x = 55

iii) 99 – x = 40
x = 59

d) iii) x = 18

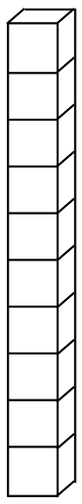
EZ

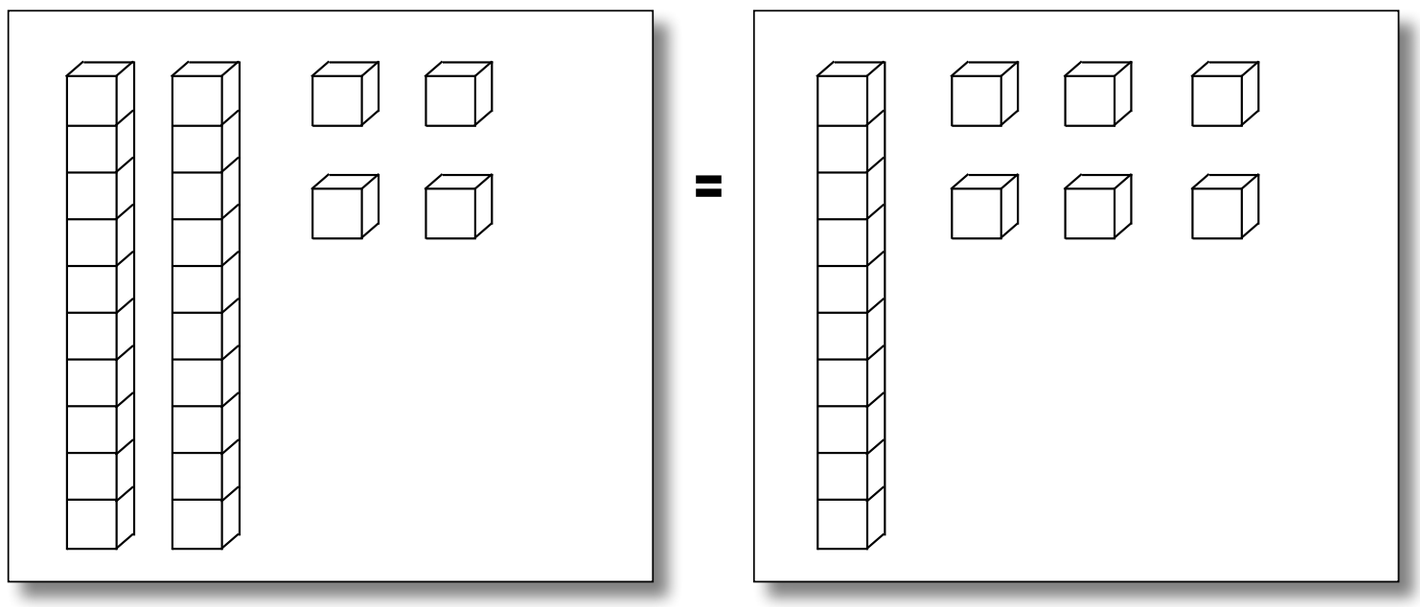
EASY MARKING ANSWER KEY

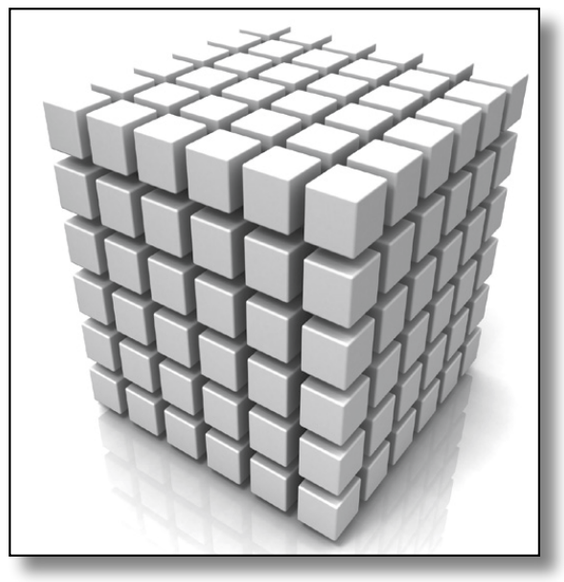
NAME: _____

1 + 2 Task Sheet

Task Sheet 13

13.  **= x and**  **= 1**



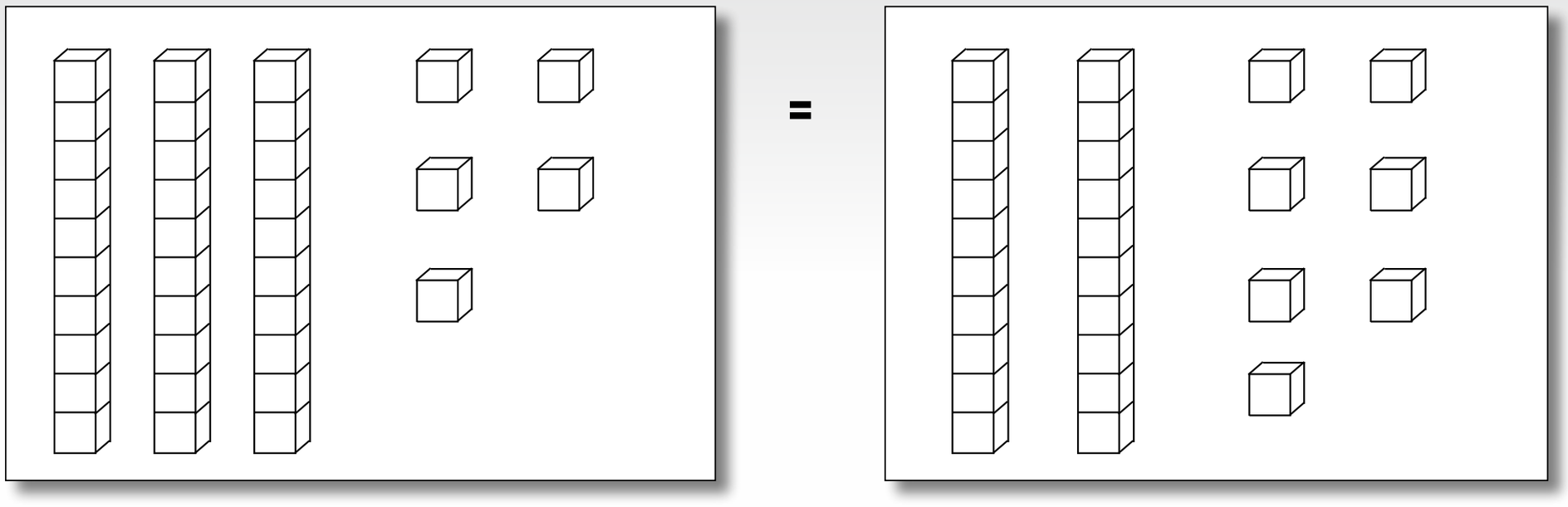


This can be represented as 2x + 4 = x + 6

a) Remove the same number of tiles from each side, making sure that you keep both sides in balance. What do you have left?

i) 2x = 1 ii) x = 2 iii) 4 + x = 2x iv) 2 + 2x = 0

b) How might the following be written as an equation?



i) 3x + 7 = 2x + 7 ii) 2x + 7 = 3 x + 4 iii) 3x + 4 = 2x – 7 iv) 3x + 5 = 2x + 7

Review Sheet

NAME: _____

Review A

a) Determine the value of ☐ in the following equations. Show your work.

i) ☐ + 5 = 11

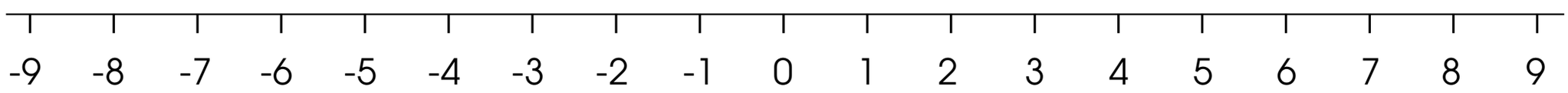
ii) 12 - ☐ = 6

iii) 7 × 3 = ☐

iv) 10 - ☐ = 3 × 2

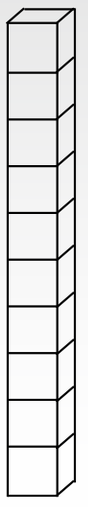
b) Graph on the accompanying number line.

x = 9

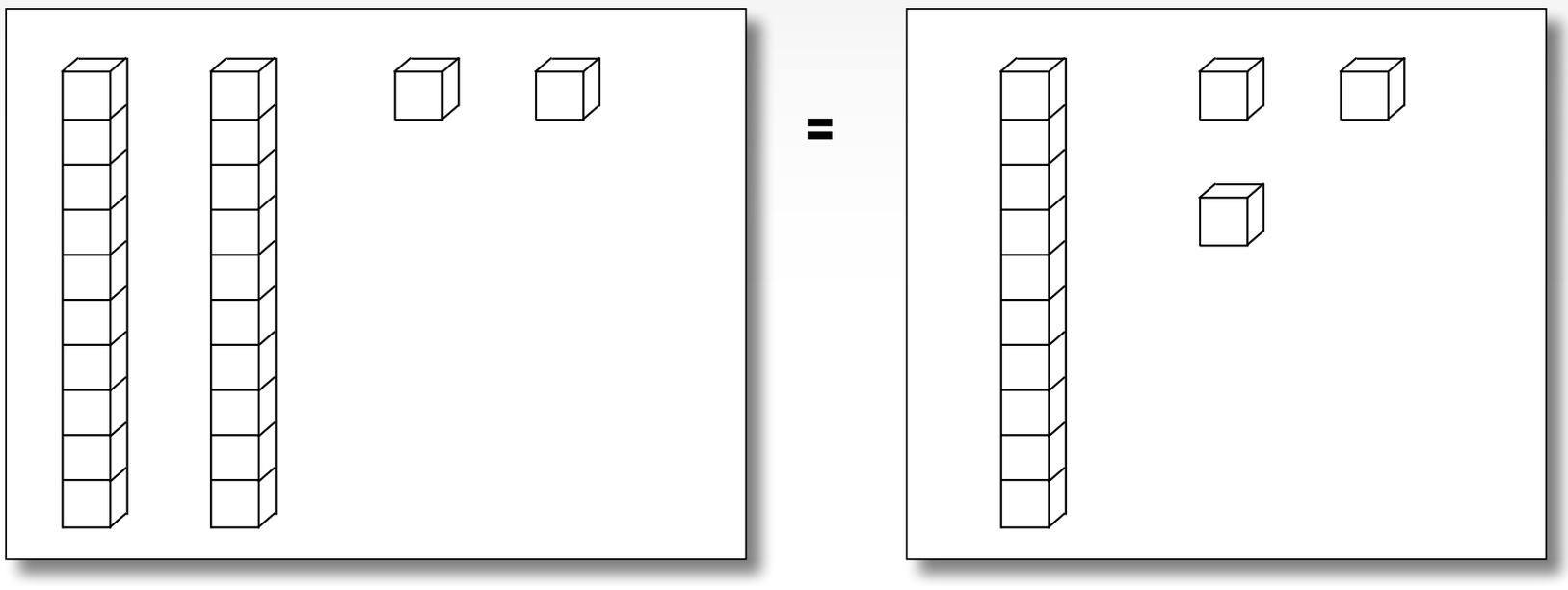


c) What is the missing term in the increasing pattern below?

24, 26, ___, 30, 32 . . .

d)  **= x and**  **= 1.**

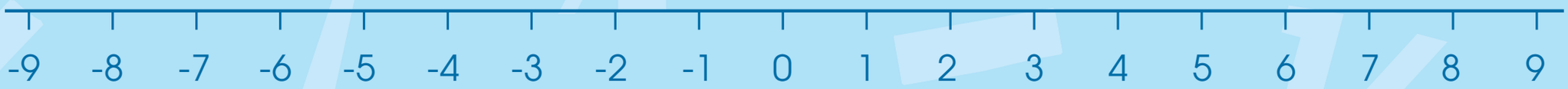
How might the following be written as an equation?



i) 2x – 2 = 1 x + 2 ii) 3x + 1 = 2x + 3 iii) 2x + 2 = 1x + 3 iv) 2x + 2 = 3x + 3

Graphing and Equations

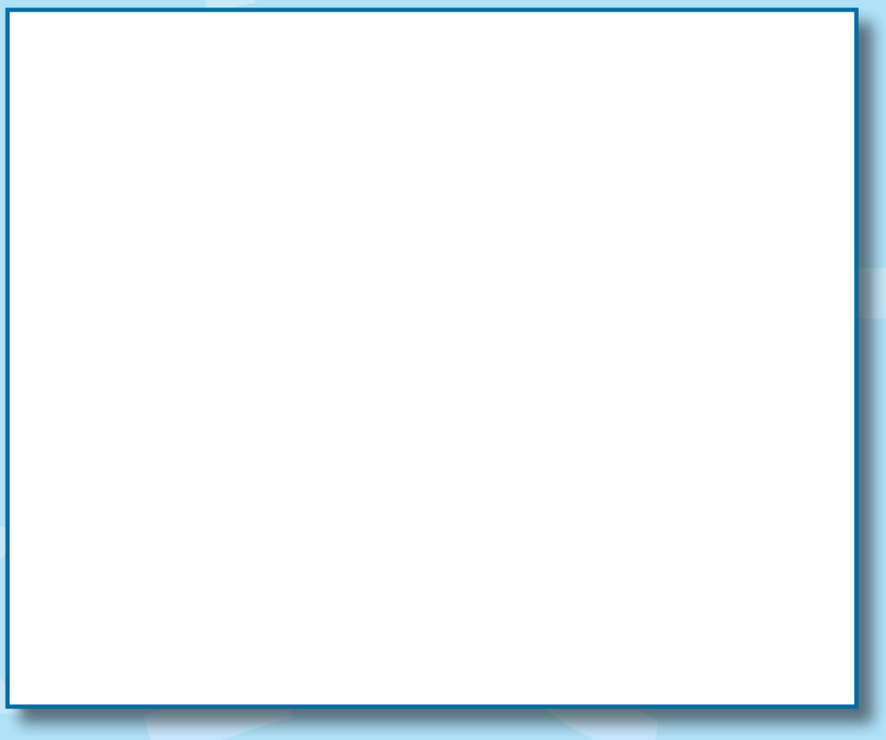
a) Graph each on the accompanying number line.



b) Round each of the following numbers to the nearest hundred.

= x  **= 1**

c) How might the following be written as an equation?



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