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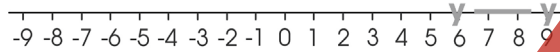- Enter item CC3213
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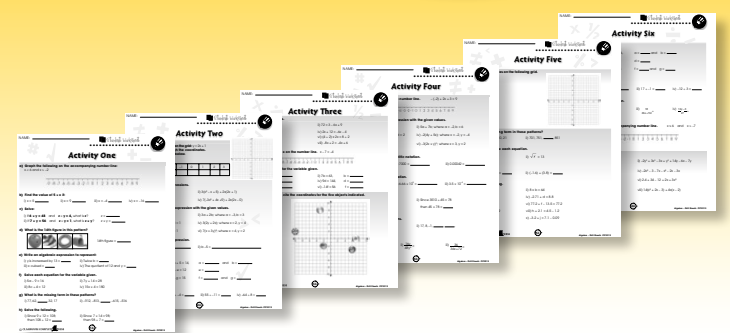
🌡️ Warm-Up Drill Sheet # 1 ✏️

1a) Graph the following on the accompanying number line: Ex: y ≤ 9 and y ≥ ...

x < 5 and x > –5

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

b) Determine the missing numbers in each equation.   Ex: 8 x 9 = 8   18 ÷ 2 = 9

i) 4 x ____ = 36   ii) 108 ÷ ____ = 6   iii) 47 – ____ = 38   iv) 17 + ____ = 52

c) Find the value of 6 × b if: Ex: b = 2   6 × 2 = 12

i) b = 4 ____   ii) b = 9 ____   iii) b = 0 ____   iv) b = 25 ____

d) What is the 11th figure in this pattern?

11th figure = ____

e) Solve the following.   Ex: If b + d = ... then the value of f in b + d + f = 102 is:
32 + f = ...   102 – 32 = 70   f = 70

i) If $a + c = 36$, what is the value of e in the equation $a + c + e = 42$? e = ____
ii) If $5 \times y = 35$ and $z – y = 3$, what is z?   z = ____
iii) If $8 \times y = 64$ and $z – y = 4$, what is z × y?   z × y = _____

f) Write an algebraic expression to represent: Ex: 5 increased by x = **5 + x**

i) y is increased by 7 = _____   ii) Twice a = _____
iii) b squared = _____   iv) The quotient of 16 and p = _____

Explore With Technology
Go to the website, http://cemc2.math.uwaterloo.ca/
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Try some of the available fun resources and online games.
These include topics on Order of Operations, Probability,
and Two-Step Algebra Questions.

10a) Evaluate each algebraic expression with the given values.

i) 9y + x; where x = 9, and y = 8   _____
ii) k4 + m; where k = 7, and m = 14   _____
iii) st – 17; where s = 9, and t = 10   _____
iv) 12(y – x); where x = 8, and y = 12   _____

b) Solve each equation for the variable given.

i) 11a = 143,   a = ____   ii) 7b = 105,   b = ____
iii) 4c = 112,   c = ____   iv) 9d = 198,   d = ____

c) Complete the following patterns.

i) –9, –20, –31, ____, ____.   ii) 16, 4, –8, ____, ____.

d) Solve:

i) a + 7 = 9   ii) 7 × b = 21   iii) 11 + c = 19
iv) –5.6 + d = 12   v) 8 –(– e) = 23   vi) 7 + f – 1 = 32
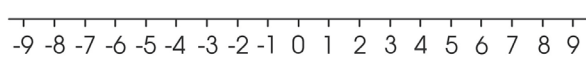vii) g + 1.08 = 2.22   viii) h + 6.0 = 4.1 – 3.9   ix) 3i + 8 = 17

Reflection A membership at the local fitness center costs $66.50 per month, plus $15 for each session with a personal trainer. Write an expression to determine the cost of going to the fitness center for x number of sessions.

Minutes

3a) Graph the following on the accompanying number line. $x \le 6$ and $x > -9$

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

b) Determine the missing numbers in each equation.

i) a ÷ 7 = 1   a = ____   ii) 35 ÷ b = 7   b = ____   iii) 42 ÷ c = 6   c = ____

c) Solve each equation for the variable given.

i) 3a + 7 = 22   ii) 8b – 9 = 39
iii) 12c ÷ 4 = 15   iv) 11d × 3 = 66

d) What is the missing term in these patterns?

i) 432, 415, ____, 381, 364   ii) –213, –238, ____, –288, –313

e) Solve the following:

i) Since 12 × 11 = 132, then 132 ÷ 12 = ____   ii) Since 9 × 8 = 72, then 72 ÷ 8 = ____

f) Solve for a.   Ex: a + 2/4 = 3/4   3/4 – 2/4 = 1/4   a = 1/4

i) a + 2/8 = 5/8   a = ____   ii) a – 2/5 = 1/5   a = ____
iii) a ÷ 2.1 = 6   a = ____   iv) 6 × a = 9   a = ____

g) Simplify the following expression.   Ex: $(x^2 + 2x + 5) + x(x + 2) = 2x^2 + 4x + 5$

i) $(3x + 2) + x(2)$ _____
ii) $2(x^2 + 2x + 4) + x(x + 3)$ _____
iii) $3(2x^2 – x + 6) – x(x – 7)$ _____
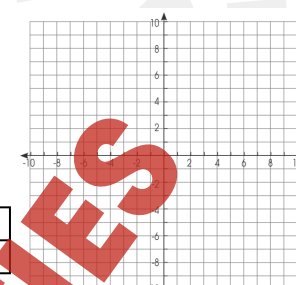iv) $12(–x^2 + 3x + 0) + x(x – 5)$ _____

Minutes

8a) Plot the following equation on the grid:
$y = –3x – 2$
Draw a straight line through the coordinates.
First – complete the chart below.

x	–4	–3	–2	–1	0	1	2
y = –3x – 2							

b) Solve the following.

i) If a – 4 = 4   and   a + b + 3 = 18   a = ____ and   b = ____
ii) If c + d = 10   and   c + d + e = 30   e = ____
iii) If 7 + f = 15   and   5 + f + g = 21   f = ____ and   g = ____

c) Find each sum.

i) (–9) – 5.2 = ____   ii) (–6.3) + (–4.5) = ____   iii) (3.3) – (–6.6) = ____

d) Find each Quotient.

i) –36 ÷ 12 = ____   ii) –100 ÷ –5 = ____   iii) 153 ÷ –17 = ____   iv) 117 ÷ 9 = ____

e) Simplify each expression using the Distributive Property.

i) –15(a + 17) =   ii) 6(1 + 4y) =   iii) (3x – 12) × 8 =

f) Solve each equation.

i) 6 = x ÷ 4 + 2   ii) $–2 = \frac{10 + x}{6}$ iii) –8 = x ÷ 2 – 2   iv) –15 = –4x + 5

Reflection Determine which of the following alternatives follows the rules to this pattern: *multiply by 2, add 26, subtract 4 (You may use a calculator for help.)*
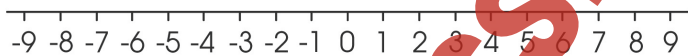i. 16, 54, 130, 278   ii. 14, 50, 123, 268   iii. 8, 38, 98, 218   iv. 26, 74, 172, 364

Review A

a) **Which pattern has this rule:** *increase by adding the same amount from each term?*

   i. 6, 11, 16, 20, 25   ii. 7.5, 13, 18.5, 24, 29.5

   iii. –17, –23, –29, –35, –41   iv. 3.3, 6.6, 9.9, 18.8, 36.6

b) **Graph the following on the accompanying number line:** $x \leq 7$ and $x > -8$

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

c) **Find the value of** $7 \times y$ **if:**

   i) $y = 6$ _____   ii) $y = 3$ _____   iii) $y = 20$ _____   iv) $y = -12$ _____

d) **If** $x + y = 24$, **what is the value of z in the equation** $x + y + z = 29$? $z = $ _____

e) **What is the 12th figure in this pattern?**

   12th figure = = _____

f) **If** $8 \times x = 72$ **and** $x - y = 4$, **what is** y? $y = $ _____

g) **What rule describes the following pattern:** –4, –8, –12, –16 _____

h) **Write an algebraic expression to represent the following.**

   i) a is decreased by 4 = _____   ii) Half x = _____

i) **Evaluate each algebraic expression with the given values.**

   i) 5x + 2y; where x = 4, and y = 5 _____   ii) 7a + 3b; where a = 2, and b = –2 _____

   iii) ab – 12; where a = 6, and b = 3 _____   iv) 7(z – x); where z = 8, and x = 5 _____

   v) 12x = 144,   x = _____   vi) –4y = 24,   y = _____

   vii) –6z = –42,   z = _____   viii) 15a = –75,   a = _____
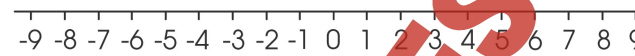

Review B

a) **Examine the following pattern:** –7, –21, –35   What is the 7th term in this pattern? _____

b) **What is the missing term in this pattern:**   333, 317, _____, 285, 269

c) **Write an algebraic expression for each phrase.**

   i) Seventy-seven times a number _____   ii) A number squared _____

d) **Graph the following on the accompanying number line:** $x \leq 4$ and $x \geq -2$
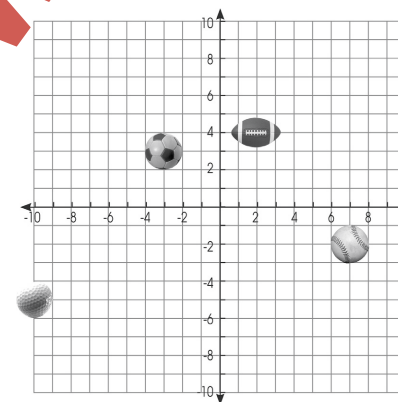
   -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9

e) **Solve each equation for the variable given.**

   i) 4x + 12 = 28   ii) 9a – 13 = 59

   iii) 10b ÷ 6 = –15   iv) 8y × 7 = 392
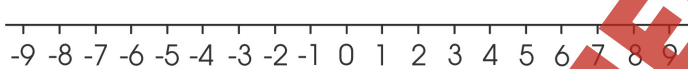
f) **Simplify the following expressions.**

   i) $(y^2 + 4y + 8) + 2y(4 - y)$ ii) $5(a^2 + 3a + 5) - a(2a + 4)$

g) **On the following grid, cite the coordinates for the four objects indicated.**

   = _____

   = _____

   = _____

   = _____

Review C

a) **Graph the solution to x on the number line.** $x + 7 = -1$

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

b) **Solve each equation.**

   i) $\sqrt{x} = 8$ ii) $\sqrt{x} = 11$

c) **Evaluate each algebraic expression with the given values.**

   i) 10a + b; where a = 7, and b = 8   _____

   ii) 7x + 2y; where x = –3, and y = 11   _____

d) **Solve:**

   i) –3.3 + d = 12   ii) 7 – (– x) = 19   iii) 72 + c = 99 – 19

   iv) –32 = –6x – 2x   v) 88 = 6 – 7x + 12

   vi) 4x – 2x = –22 + 3x   vii) x + 11 = –6x + 18

e) **Simplify the following expressions.**

   i) $3(3x^2 - 4x + 6) + 3x(2x - 8)$ ii) $x(-2x^2 - 5x + 9) + 4x(x - 10)$

   iii) $7(2x^2 - 5x + 8) - 3x(11x - 2)$ iv) $-3x(6x + 8x + 23) + 6x(3x - 2)$

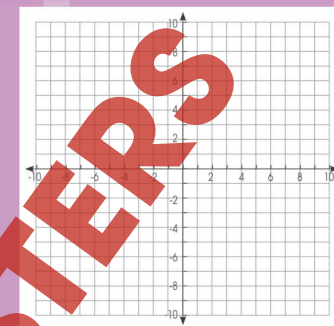f) **What is the missing term in these patterns?**

   i) 13, 24, 35, 46, _____   ii) –9, –30, _____, –72, –93

g) **Write as a scientific or standard notation.**

   i) 76800 = _____   ii) 9.14×10^5 = _____

Plotting, Expressions, Scientific and Standard Notations

a) **Plot the following equation on the grid.**

   Draw a straight line through the coordinates.
   First – complete the chart below.

x =					
y =					

b) **Simplify each expression.**

   i) $-\dfrac{x^3}{x^2}$ = _____   ii) $\dfrac{y^2}{y^3}$ = _____

c) **Write each number as a scientific notation.**

   i) _____ = _____   ii) _____ = _____

d) **Write each as a standard notation.**

   i) _____ = _____   ii) _____ = _____

e) **Simplify the following expression.**
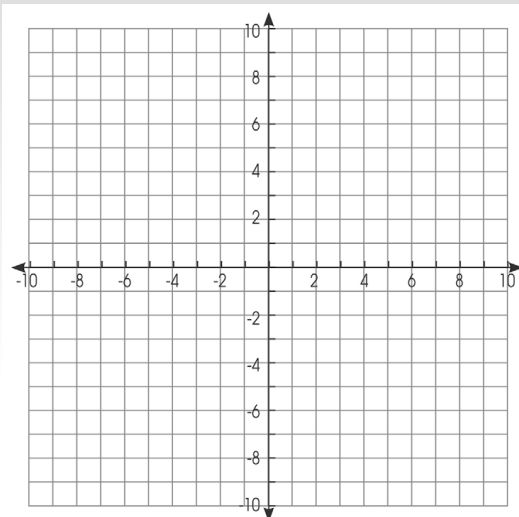
   i) _____ = _____

11a) **Plot the following coordinates on the accompanying grid.**

A = (1, 3)

B = (0, –5)

C = (–6, –4)

D = (8, 0)

b) **What is the missing term in these patterns?**

i) 12, 24, 48, 96, _____

ii) 1024, 512, 256, _____, 64

c) **Simplify the following expressions.**

i) $2(2x^2 - 4x + 3) + 2x(3x - 7)$

ii) $(-x^2 - 3x + 6) + 3x(2x + 13)$

iii) $5(3x^2 - 2x + 1) - 4x(2x - 9)$

iv) $-x(2x + 4x + 3) + 2x(2x - 4)$

d) **Solve each equation.**

i) $\sqrt{x} = 3$

ii) $\sqrt{x} = 12$

iii) $4.6 \times 1 = x$

iv) $y + 2 = 5.3$

v) $x + 3/5 = 4/5$

vi) $y \times 1/7 = 5/7$
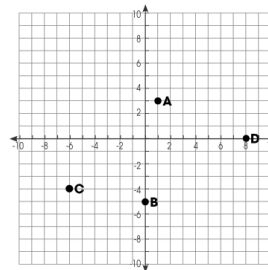
e) **Solve each proportion.**

i) $7 \div 10 = x \div 4$

ii) $3 \div 5 = x \div 12$

iii) $2 \div 4 = x \div 5$

iv) $2 \div 3 = x \div 15$

Algebra – Drill Sheets CC3213

EASY MARKING ANSWER KEY

11.

a)

b)

i) 192   ii) 128

c)

i) $10x^2 - 22x + 6$
ii) $5x^2 + 36x + 6$
iii) $7x^2 + 26x + 5$
iv) $-2x^2 - 11x$

d)

i) x = 64   ii) x = 144
iii) x = 4.6   iv) y = 3.3
v) x = 1/5   vi) y = 5

e)

i) x = 2.8   ii) x = 7.2
iii) x = 2.5   iv) x = 10

12.

a)

i) n + 32

ii) 6 × 2

b)

i) a = 4   ii) b = –3
iii) c = 8   iv) d = 11

c)   2289

d)

i) x = 3   ii) x = –10
iii) x = 2   iv) x = 1

e)

i) –5x/2   ii) $1/3y^2$

iii) $\dfrac{3}{3x+2}$ iv) $\dfrac{6y-1}{8}$

v) 8/21   vi) 9/20
vii) 27/50   viii) 5/6
ix) 1 1/6

13.

a)

i) a = 18, b = 4

ii) e = 3

iii) f = 3, g = 30

iv) 16   v) 108

vi) a = 19   vii) b = 7

viii) c = 57
ix) d = 12.9

x) e = 16   xi) f = 15

xii) g = 4.45
xiii) h = –8.1

xiv) i = 4   xv) j = 48

b)

 = (–7, 2)

 = (9, –4)

 = (–4, –3)

 = (10, 6)

 = (5, 4)

14.

a)
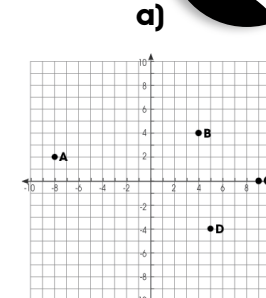
b)

i) c = 17   ii) c = 45
iii) c = 72.6   iv) c = 8

c)

i) $8x^2 + 4x + 2$
ii) $2x^2 + 2x + 8$
iii) –3x   iv) $9x^2 + x + 3$

d)

i) x = 9   ii) x = –27
iii) x = –3   iv) x = 3

e)

i) x = 2   ii) x = –8
iii) x = –3   iv) x = 6