A DEFINITIONS

A.1 MATH ESCAPE ROOM: LEVEL 1

MCQ 1: For this Math escape room, the code is:

$$\bigcirc + 5 = 9$$

Which code do you use to enter?

- $\square \bigcirc = 2$
- $\square \bigcirc = 4$
- \square $\bigcirc = 5$
- $\square \bigcirc = 9$

MCQ 2: For this Math escape room, the code is:

$$\triangle + 10 = 1 + 2 \times 6$$

Which code do you use to enter?

- $\square \triangle = 3$
- $\square \triangle = 5$
- $\square \triangle = 8$
- $\Box \triangle = 10$

MCQ 3: For this Math escape room, the code is:

$$\Box + 5 = 2 \times 4 + 1$$

Which code do you use to enter?

- $\square \square = 6$
- $\square \square = 8$
- $\square = 5$
- $\square \square = 4$

MCQ 4: For this Math escape room, the code is:

$$\bigcirc -4 = 3 \times 2 - 1$$

Which code do you use to enter?

- $\square \bigcirc = 7$
- $\square \bigcirc = 6$
- $\square \bigcirc = 5$
- $\square \bigcirc = 9$

A.2 MATH ESCAPE ROOM: LEVEL 2

MCQ 5: For this Math escape room, the code is:

$$2 \times \bigcirc -2 = \bigcirc +10$$

Which code do you use to enter?

- $\square \bigcirc = 8$
- $\square \bigcirc = 10$
- \square $\bigcirc = 12$
- \square $\bigcirc = 14$

MCQ 6: For this Math escape room, the code is:

$$3x + 7 = x + 19$$

Which code do you use to enter?

- $\square \ x=2$
- $\square \ x = 4$
- $\Box x = 6$
- $\square x = 8$

MCQ 7: For this Math escape room, the code is:

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

Which code do you use to enter?

- $\Box x = 6$
- $\square \ x = 8$
- $\square \ x = 10$
- $\square \ x = 12$

 \mathbf{MCQ} 8: For this Math escape room, the code is:

$$x \times (x - 2) = 24$$

Which code do you use to enter?

- $\Box x = 6$
- $\square \ x = 7$
- $\square \ x = 8$
- $\square \ x = 9$

A.3 MATH ESCAPE ROOM: LEVEL 3

MCQ 9: For this Math escape room, the code is:

$$x^2 - 4 = 0$$

Which code do you use to enter?

- $\square x = 2$
- $\Box x = 3$
- $\square \ x = 4$
- $\square \ x = 5$

MCQ 10: For this Math escape room, the code is:

$$x^2 - 2x + 1 = 0$$

Which code do you use to enter?

- $\Box x = 0$
- $\square x = 1$
- $\square \ x=2$
- $\square \ x = 3$

MCQ 11: For this Math escape room, the code is:

$$\frac{2x+1}{x-1} = 3$$

Which code do you use to enter?

- $\square x = 2$
- $\square \ x = 3$
- $\square \ x = 4$
- $\square \ x = 5$

B SOLVING BY TRIAL AND ERROR

B.1 FINDING A SOLUTION: LEVEL 1

Ex 12: Consider the equation 2x + 3 = 11.

Use the trial-and-error method to find a solution (try $x = 2, 3, \ldots$).

$$x = \boxed{}$$

Ex 13: Consider the equation 3x - 5 = 10.

Use the trial-and-error method to find a solution (try $x = 4, 5, \ldots$).

$$x =$$

Ex 14: Consider the equation x(x-1) = 6.

Use the trial-and-error method to find a solution (try $x=2,3,\ldots$).

$$x = \boxed{}$$

Ex 15: Consider the equation 2x - 3 = 5x - 9.

Use the trial-and-error method to find a solution (try x = 0, 1, ...).

$$x =$$

B.2 FINDING A SOLUTION: LEVEL 2

Ex 16: Consider the equation $x^2 - 2x + 1 = 0$.

Use the trial-and-error method to find a solution (try x = 0, 1, ...).

$$x =$$

Ex 17: Consider the equation $x^2 - 9 = 0$.

Use the trial-and-error method to find a solution (try $x = 2, 3, \ldots$).

$$x =$$

Ex 18: Consider the equation $\frac{x+2}{x-2} = 2$.

Use the trial-and-error method to find a solution (try x = 6, 3, 4).

$$x =$$

C EQUIVALENT EQUATIONS

C.1 SOLVING EQUATIONS BY ADDING OR SUBTRACTING

Ex 19: Solve for x:

$$x + 10 = 80$$

$$x =$$

Ex 20: Solve for x:

$$x + 20 = 36$$

$$x =$$

Ex 21: Solve for x:

$$x + 1 = 100$$

$$x =$$

Ex 22: Solve for x:

$$x + 0.5 = 3$$

$$x =$$
 (write in decimal form)

Ex 23: Solve for x:

$$x - 10 = -20$$

$$x =$$

Ex 24: Solve for x:

$$x - 5 = -2$$

$$x =$$

C.2 SOLVING EQUATIONS BY MULTIPLYING OR DIVIDING

Ex 25: Solve for x:

$$2x = 16$$

$$x =$$

Ex 26: Solve for x:

$$2x = 30$$

$$x = \boxed{}$$

Ex 27: Solve for x:

$$3x = 27$$

$$x =$$

Ex 28: Solve for x:

$$\frac{x}{4} = 5$$

$$x = \boxed{}$$

Ex 29: Solve for x:

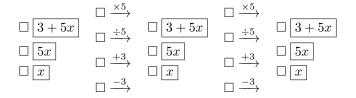
$$\frac{x}{3} = \frac{1}{2}$$

x = (write in decimal form)

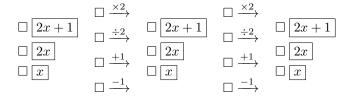
D DOING AND UNDOING EXPRESSIONS

D.1 DOING EXPRESSIONS

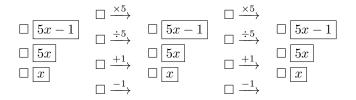
Ex 30: Do the expression 3 + 5x



Ex 31: Do the expression 2x + 1

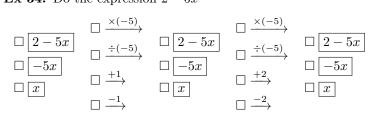


Ex 32: Do the expression 5x-1

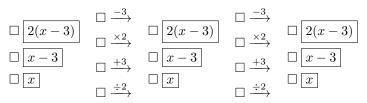


Ex 33: Do the expression $\frac{x}{2} + 3$

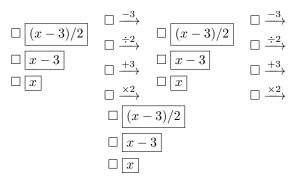
Ex 34: Do the expression 2-5x



Ex 35: Do the expression 2(x-3)

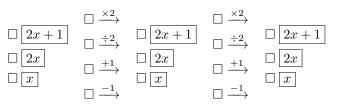


Ex 36: Do the expression $\frac{x-3}{2}$



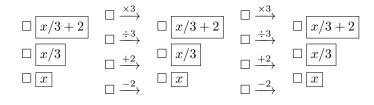
D.2 UNDOING EXPRESSIONS

Ex 37: Undo the expression 2x + 1

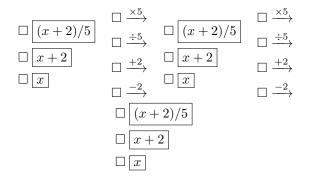


Ex 38: Undo the expression 3x - 2

Ex 39: Undo the expression $\frac{x}{3} + 2$



Ex 40: Undo the expression $\frac{x+2}{5}$



E SOLVING LINEAR EQUATIONS

E.1 SOLVING LINEAR EQUATIONS: LEVEL 1

Ex 41: Solve for x:

$$2x + 1 = 7$$

$$x =$$

Ex 42: Solve for x:

$$2x - 4 = 5$$

$$x =$$

Ex 43: Solve for x:

$$4x - 7 = 9$$

$$x =$$

Ex 44: Solve for x:

$$3x + 10 = 4$$

$$x =$$

E.2 SOLVING LINEAR EQUATIONS: LEVEL 2

Ex 45: Solve for x:

$$\frac{x-17}{3} = 10$$

$$x = \boxed{}$$

Ex 46: Solve for x:

$$\frac{x-2}{6} = \frac{2}{3}$$

$$x =$$

Ex 47: Solve for x:

$$4(x+2) = 40$$

$$x =$$

Ex 48: Solve for x:

$$\frac{2x+5}{4} = 3$$

$$x =$$

F SOLVING PRODUCT OF LINEAR EQUATIONS

F.1 SOLVING EQUATIONS USING THE NULL FACTOR LAW: LEVEL 1

Ex 49: Solve for x:

$$x(x+1) = 0$$

Give your answers in increasing order:

The set of solutions is { , } }

Ex 50: Solve for x:

$$(x+2)(x-1) = 0$$

Give your answers in increasing order:

The set of solutions is { | , ____}}

Ex 51: Solve for x:

$$(x+6)(x-3) = 0$$

Give your answers in increasing order:

The set of solutions is { , } }

Ex 52: Solve for x:

$$(x-1)(x-2) = 0$$

Give your answers in increasing order:

The set of solutions is { , } }

F.2 SOLVING EQUATIONS USING THE NULL FACTOR LAW: LEVEL 2

Ex 53: Solve for x:

$$(2x+6)(x+2) = 0$$

Give your answers in increasing order:

The set of solutions is { | , |

Ex 54: Solve for x:

$$(x+2)(2x-1) = 0$$

Give your answers in increasing order:

The set of solutions is { ______, ___}}

Ex 55: Solve for x:

$$\left(\frac{x}{2} - 1\right)(2x + 2) = 0$$

Give your answers in increasing order:

The set of solutions is { _____, ___}}.

Ex 56: Solve for x:

$$x(x-1)(x-2) = 0$$

Give your answers in increasing order:

The set of solutions is { , , , }

G SOLVING QUADRATIC EQUATIONS IN THE FORM $x^2=k$

G.1 SOLVING QUADRATIC EQUATIONS IN THE FORM $x^2=k$

Ex 57: Solve for x:

$$x^{2} = 9$$

Give your answers in increasing order:

The set of solutions is { , ____}}.

Ex 58: Solve for x:

$$x^2 = 25$$

Give your answers in increasing order:

The set of solutions is { , ____}}.

Ex 59: Solve for x:

$$x^2 = 10$$

Give your answers in increasing order:

The set of solutions is { , }

Ex 60: Solve for x:

$$x^2 - 3 = 0$$

Give your answers in increasing order:

The set of solutions is { | , | }.