TEACHER COPY · READ FIRST

Ropes Course Equations on paper · Grade 8

4 printable trips that match the 4 levels of the online game. No device or account needed.

What is inside

Pages	For	What
This page	Teacher	How to run, score and choose a next step
Trips 1–4	Students	Each trip: the level's picture and checkpoint names, five checkpoints (the last has two parts) and an unscored Talk bonus. Trips 1–2 use the game's main questions; trips 3–4 practice the same kinds of questions with new numbers.
Answer key	Teacher	Answer, the game's clue, worked steps, and what common wrong answers usually mean
Record sheet	Teacher	First answers and fixes, one row per student per trip

Run one trip (20–30 minutes)

1. Copy one trip for each student. Students may use scratch paper; no calculator is needed.
2. Check each checkpoint. After a first miss, read the **clue** from the key aloud and let the student try once more. They keep the first answer and write the new one with a star (★). This is what the online game does.
3. After a second miss, go through the **worked steps** together, as the game does.
4. On a question with several boxes or rows, every box must be right for the first answer to count.

Count and choose a next step

Count **first answers** on checkpoints 1–4, and record Part A and Part B of checkpoint 5 separately. Fixes with a star go in their own column. There is no cut score.

What you see	A next step
Fixed after the clue (★)	Ask what the clue made them notice; give the matching question on a later trip.
Missed twice	Work the steps together, then try the trip 3–4 question from the same family (same kind, new numbers).
The key's wrong-answer note keeps repeating	Teach to that error (for example, doing a step to only one side of an equation, or forgetting to flip an inequality when dividing by a negative).
Part A right, Part B wrong	The first step is solid; talk through how Part B uses it.

Levels in this packet

- **Course 1: Ropes Course** — Cargo Ladder, Swinging Bridge, Hanging Logs, Zip Line, Rings & Cargo Net
- **Course 2: Pine Canopy** — Rope Ladder, Overhead Traverse, Swinging Logs, Balance Beam & Zip Line, Bridge & Cargo Net
- **Course 3: Moab Canyon** — Stairs & Beam, Stone Steps, Cargo Net, Ladder & Zip Line, Bridge, Net & Traverse
- **Course 4: Alpine** — Stairs & Rope Traverse, Hanging Logs, Bridges & Stairs, Cargo Net, Steps & Zip Line

Same questions as the online game. These are the game's questions, so a student who played online may have seen some. Original practice from Pole Mountain Learning, informed by published mathematics expectations. It is not an official Pearson, NAVVY or WY-TOPP assessment and does not use their test questions. Results are practice notes, not grades, and do not predict test scores or establish mastery. Built and reviewed with AI tools; no human classroom trial of this revision yet. Free for classroom use. November 2026 edition.

TEACHER ANSWER KEY · KEEP SEPARATE FROM STUDENT COPIES

Answer key · Grade 8

Course 1: Ropes Course

#	Skill · standard	Answer	Clue (after a first miss) and worked steps	Common wrong answers
1	Linear equations 8.EE.7a	5 Any numerically equivalent whole number, fraction, mixed number or finite decimal; no rounding.	**Clue:** Move variable terms to one side and constants to the other using equal operations. **Worked:** Subtract 2x from both sides: 3x − 7 = 8. Add 7, then divide by 3: x = 5. Check: 5 × 5 − 7 = 18 and 2 × 5 + 8 = 18.	
2	Multi-step linear equations 8.EE.7a	6 Any numerically equivalent whole number, fraction, mixed number or finite decimal; no rounding.	**Clue:** Distribute on both sides, combine like terms, then compare the variable terms. **Worked:** Distribute and combine: 3x − 4 = 2x + 2. Subtract 2x: x − 4 = 2. Add 4: x = 6. Check: 3 × (6 − 2) + 2 = 14 and 2 × (6 + 1) = 14.	
3	One, none or infinitely many 8.EE.7b	2(x + 3) = 2x + 6: **Infinitely many** · 4x − 1 = 4x + 5: **None** · 3x + 2 = x + 8: **One** · −2(x − 3) = −2x + 4: **None**	**Clue:** If variable terms cancel, decide whether the remaining statement is always true or impossible. **Worked:** Row 1 reduces to 6 = 6, true for every x. Row 2 reduces to −1 = 5, which is never true. Row 3 reduces to 2x = 6, giving the single solution x = 3. Row 4 expands to −2x + 6 = −2x + 4, which would require 6 = 4; it has no solution.	Simplify both sides, then classify the resulting statement. Distribute, then decide whether the remaining statement can ever be true.
4	Equation structure and solution classes 8.EE.7b	For no solution: 3(x + 2) = **3x + 8**. For infinitely many solutions: 2(x − 4) = **2x − 8**. For one solution: 5x + 1 = **3x + 1**.	**Clue:** Simplify both sides of each equation. Matching variable coefficients can leave either a true statement or a contradiction; different coefficients give one solution. **Worked:** First: 3x + 6 = 3x + 8 reduces to 6 = 8, so no solution. Second: 2x − 8 = 2x − 8 is true for every x. Third: 5x + 1 = 3x + 1 reduces to 2x = 0, giving x = 0.	
5A	Systems and shared points 8.EE.8a	The system has **no solution**.	**Clue:** Consider whether the lines share one point, no points or a whole line. **Worked:** Both slopes are 2, but the intercepts are 1 and −3. The lines are parallel and never share a point. The system has no solution.	
5B		**A**	**Clue:** Compare the actual coefficients and constants, rewriting an equation if needed. **Worked:** Both slopes are 2, but the intercepts are 1 and −3. The lines are parallel and never share a point. The system has no solution.	**B:** This identifies the shared slope, but alone it does not distinguish one shared line from two parallel lines. **C:** Integer intercepts alone do not determine whether two lines intersect; compare slopes and intercepts together.

Talk bonus (balance): Subtract 3 from the other side too.

Course 2: Pine Canopy

#	Skill · standard	Answer	Clue (after a first miss) and worked steps	Common wrong answers
1	Linear inequalities 8.EE.7a	**D**	**Clue:** Collect variable terms on one side. Reverse direction if you divide by a negative number. **Worked:** Subtract $(\frac{1}{2})x$ from both sides and add 2: $(\frac{3}{2} - \frac{1}{2})x \le 3$. The coefficient difference is 1, so $x \le 3$. Use a closed dot at 3 and a ray to the left.	**A:** Check the subtraction of the fractional coefficients before dividing. **B:** A less-than-or-equal inequality includes its boundary. **C:** Dividing by a positive coefficient keeps the inequality direction.
2	Systems on a graph 8.EE.8a, 8.EE.8b	**C**	**Clue:** A system solution is a point shared by both lines. Read x first, then y. **Worked:** The lines cross 2 units to the right and 3 units above the origin. At (2, 3), both equations give y = 3.	**A:** The coordinates are reversed from the crossing point. **B:** This is on the first line, but not the second.
3	Meaning of a system solution 8.EE.8a	(1, 3): **No** · (4, 3): **No** · (3, 5): **Yes**	**Clue:** Use the x value in each equation. Both results must equal the point's y value. **Worked:** (1, 3) fits $y = x + 2$ but not $y = -2x + 11$. (4, 3) fits the second equation but not the first. (3, 5) fits both, so only that row is Yes.	Check the ordered pair in both equations, not just one.
4	Systems in context 8.EE.8c	**C and E**	**Clue:** Use the starting amount as the constant. The signed rate multiplies the elapsed count. **Worked:** For A, $y = 2x + 4$. For B, $y = x + 10$. Keep these as two equations; do not add them into a single score model.	**A:** Score A starts at 4; 4 is not its per-lap rate. **B:** Score B starts at 10 and adds 1 per lap. **D:** This adds the two scores; it is not either individual score.
5A	Systems in context 8.EE.8b, 8.EE.8c	2 minutes Any numerically equivalent whole number, fraction, mixed number or finite decimal; no rounding.	**Clue:** Find the shared point on the graph. Decide which coordinate represents minutes. **Worked:** The lines intersect at (2, 6). The x-coordinate gives time: 2 minutes.	
5B		**A**	**Clue:** A shared point has one time coordinate and one amount that fits both models. **Worked:** At $x = 2$, A has $2 \times 2 + 2 = 6$ markers. B has $8 - 2 = 6$ markers, so each box holds 6.	**B:** This switches the time coordinate with the marker coordinate. **C:** The common y-value belongs to each box; it is not the combined total.

Talk bonus (traverse): The climber moves sideways along the bar, one hand at a time.

Course 3: Moab Canyon

#	Skill · standard	Answer	Clue (after a first miss) and worked steps	Common wrong answers
1	Linear equations 8.EE.7a	3.5 Any numerically equivalent whole number, fraction, mixed number or finite decimal; no rounding.	**Clue:** Move variable terms to one side and constants to the other using equal operations. **Worked:** Subtract $(\frac{1}{2})y$ from both sides: $3 = y - \frac{1}{2}$. Add $\frac{1}{2}$ to both sides: $y = 3.5$. Check: $(\frac{1}{2}) \times 3.5 + 3 = 4.75$ and $(\frac{3}{2}) \times 3.5 - \frac{1}{2} = 4.75$.	

#	Skill · standard	Answer	Clue (after a first miss) and worked steps	Common wrong answers
2	Multi-step linear equations 8.EE.7a	-6 Any numerically equivalent whole number, fraction, mixed number or finite decimal; no rounding.	**Clue:** Distribute to each term inside parentheses, including negative constants. **Worked:** Expand and combine: $5y + 2 = 4y - 4$. Subtract $4y$, then subtract 2: $y = -6$. Check: $2 \times (3 \times (-6) + 1) - (-6) = -28$ and $4 \times (-6 - 1) = -28$.	
3	One, none or infinitely many 8.EE.7b	$2(y + 1) = 3y - 4$: **One** · $(\frac{1}{2})(4y - 8) = 2y - 4$: **Infinitely many** · $5(y - 1) = 3y + 1$: **One** · $3(y - 2) = 3y + 2$: **None**	**Clue:** If variable terms cancel, decide whether the remaining statement is always true or impossible. **Worked:** Row 1 gives $y = 6$, one solution. Row 2 expands to $2y - 4 = 2y - 4$, true for every y. Row 3 reduces to $2y = 6$, giving the single solution $y = 3$. Row 4 gives $3y - 6 = 3y + 2$, which would require $-6 = 2$; it has no solution.	Simplify both sides, then classify the resulting statement. Distribute first, then decide whether the remaining equality can ever be true.
4	Equation structure and solution classes 8.EE.7b	For infinitely many solutions: $(\frac{1}{2})(4y - 8) =$ **$2y - 4$**. For one solution: $-2(y + 1) =$ **$-y - 2$**. For no solution: $4y + 3 =$ **$4y - 3$**.	**Clue:** Simplify both sides of each equation. Matching variable coefficients can leave either a true statement or a contradiction; different coefficients give one solution. **Worked:** First: $(\frac{1}{2})(4y - 8)$ expands to $2y - 4$, matching the selected right side for every y. Second: $-2y - 2 = -y - 2$ gives $-y = 0$, so $y = 0$. Third: $4y + 3 = 4y - 3$ would require $3 = -3$, so there is no solution.	
5A	Systems and shared points 8.EE.8a	The system has **infinitely many solutions**.	**Clue:** Consider whether the lines share one point, no points or a whole line. **Worked:** The equations have the same slope and intercept, so they describe the same line. Every point on that line satisfies both equations. The system has infinitely many solutions; points off that line are not solutions.	
5B		**B**	**Clue:** Compare the actual coefficients and constants, rewriting an equation if needed. **Worked:** Start with the second equation: $x + y = 2$. Subtract x from both sides: $y = 2 - x = -x + 2$. This is the first equation, so both equations describe the same line.	**A:** The shared slope alone could describe either the same line or two distinct parallel lines; also compare intercepts. **C:** One shared point could also occur for two different crossing lines; it does not establish every shared point.

Talk bonus (pillar): A rock pillar at each end.

Course 4: Alpine

#	Skill · standard	Answer	Clue (after a first miss) and worked steps	Common wrong answers
1	Linear inequalities 8.EE.7a	**A**	**Clue:** Collect variable terms on one side. Reverse direction if you divide by a negative number. **Worked:** Subtract 2y and subtract 2: $-3y < 6$. Divide by −3 and reverse the inequality: $y > -2$. Use an open dot at −2 and a ray to the right.	**B:** A strict inequality does not include equality. **C:** Check the sign when subtracting the constants and dividing by the negative coefficient. **D:** Dividing an inequality by a negative number reverses its direction.
2	Systems on a graph 8.EE.8a, 8.EE.8b	**A**	**Clue:** A system solution is a point shared by both lines. Read x first, then y. **Worked:** The intersection is 1 unit left and 3 units below the origin. At $x = -1$, both equations give $y = -3$.	**B:** The x and y values are reversed. **C:** This point is on $y = 2x - 1$, but it fails the other equation.
3	Meaning of a system solution 8.EE.8a	(1, −1): **Yes** · (−1, −5): **Yes** · (2, 2): **No**	**Clue:** Use the x value in each equation. Both results must equal the point's y value. **Worked:** For (1, −1): $-1 = 2 \times 1 - 3$ and $2 \times (-1) = 4 \times 1 - 6$; both are true. For (−1, −5): $-5 = 2 \times (-1) - 3$ and $2 \times (-5) = 4 \times (-1) - 6$; both are true. For (2, 2): the first right side is 1, not 2, and the second is 2, not 4. Neither equation is satisfied. Dividing the second equation by 2 shows that the equations describe the same line. More than one listed point may work.	Check the ordered pair in both equations, not just one.
4	Systems in context 8.EE.8c	**A and E**	**Clue:** Use the starting amount as the constant. The signed rate multiplies the elapsed count. **Worked:** Container A is modeled by $y = 12 - 2x$. Container B is modeled by $y = x + 3$. The two equations describe separate quantities over the same minutes.	**B:** Container A loses water, so its rate is negative. **C:** For B, 3 is the initial amount and 1 is the rate. **D:** This uses 12 as the rate instead of the initial amount.
5A	Systems in context 8.EE.8b, 8.EE.8c	3 markers Any numerically equivalent whole number, fraction, mixed number or finite decimal; no rounding.	**Clue:** Find where the lines meet and read the coordinate that counts markers. **Worked:** The lines intersect at (3, 7). The horizontal coordinate counts markers, so the count is 3.	
5B		**C**	**Clue:** Read what x and y mean, then apply the shared y-value to each price. **Worked:** At $x = 3$, price A is $3 + 4 = 7$ credits. Price B is $2 \times 3 + 1 = 7$ credits too.	**A:** The marker count is the x-coordinate, not the y-coordinate. **B:** At 4 markers, price A is 8 credits but price B is 9; the prices are not equal.

Talk bonus (suspended): They hang from ropes instead of resting on something solid.

TEACHER COPY · CLASS RECORD SHEET

Ropes Course Equations on paper · Grade 8

Use initials or class codes only. One row per student per trip. Copy this page for more students.

Student (initials or code)	Course #	Checkpoint 1	Checkpoint 2	Checkpoint 3	Checkpoint 4	Checkpoint 5 · Part A	Checkpoint 5 · Part B	Next step / notes

In each checkpoint cell write ✓ if the FIRST answer was right, or ★ if the student fixed it after the clue. Leave it blank if it was still missed. Count only ✓ as first answers, as the online game does; ★ fixes are shown but counted separately. Part A and Part B of checkpoint 5 are recorded separately.