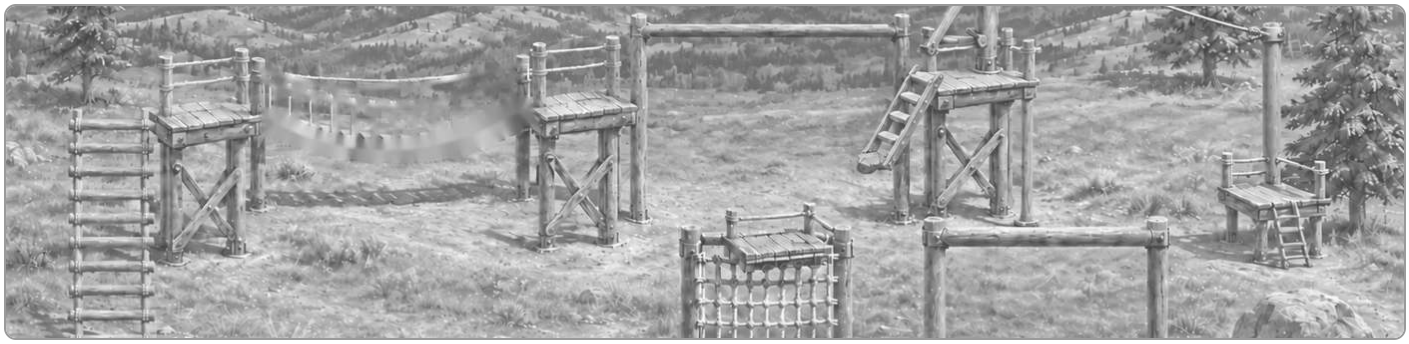
POLE MOUNTAIN LEARNING · PRINTABLE · NO DEVICE NEEDED

Ropes Course Equations: Course 1 of 4

Ropes Course · Grade 6



Name or class code _____ Date _____

Your trip

1. Solve each checkpoint. Show your thinking in the space beside the question.
2. Circle, write or fill in your answer on the question itself, then mark that checkpoint on the trip map.
3. Checkpoint 5 has two parts. Answer Part A, then Part B.
4. Your teacher checks each checkpoint. If you missed one, your teacher gives you the clue and you try again. Keep your first answer; write the new one beside it with a star (★).

① Cargo Ladder	② Swinging Bridge	③ Hanging Logs	④ Zip Line	⑤ Rings & Cargo Net
☐ done ☐ fixed ★	☐ done ☐ fixed ★	☐ done ☐ fixed ★	☐ done ☐ fixed ★	☐ A done ☐ B done ☐ fixed ★

① Cargo Ladder

Expressions in context

A practice log awards 3 points for each completed station and 2 extra points for the whole route. Let s be the number of completed stations.

Which expression gives the total points?

Ⓐ 3(s + 2)

Ⓑ 3s + 2

Ⓒ 3 + 2s

2 Swinging Bridge

Parts of expressions

A puzzle card shows 5t + 8.

Complete both statements about the expression.

Circle one choice in each box.

The coefficient (the number multiplying the variable) of t is [8 / 5 / 13]. The expression means

- ○ five times the sum of t and eight
- ○ the sum of five times t and eight
- ○ eight times the sum of five and t

3 Hanging Logs

Evaluate expressions

At a puzzle station, the rule is $2^3 + 3x$. Use $x = 4$.

What value does the rule produce?

Answer: _____

Write a number only. Fractions and decimals are accepted. Leave out units.

4 Zip Line

Equivalent expressions

The card shows 4(x + 3).

Circle exactly TWO expressions that have the same value as the card for every value of the variable.

- [A] 4x + 12
- [B] 4x + 3
- [C] 12 + 4x
- [D] 7x
- [E] 4x + 7

(5) Rings & Cargo Net

Strict inequalities

Use the rule $x < 6$ for both parts.

Part A

Does each value satisfy the rule?

Mark one box in each row.

	Yes	No
$x = 4.5$	☐	☐
$x = 6$	☐	☐
$x = 7$	☐	☐

Part B

Why does a graph of this rule use an open dot?

(A) Only whole-number values are solutions.

(B) The boundary is a solution.

(C) The boundary value is not a solution.

Course Talk (bonus, not scored): balance

The balance beam is a reminder to keep an equation **balanced**. In a balanced equation, both sides have equal value. Adding or subtracting the same amount on both sides keeps that equality.

If you subtract 3 from one side of an equation, what must you do to the other side to keep the equation balanced?

_____

_____

POLE MOUNTAIN LEARNING · PRINTABLE · NO DEVICE NEEDED

Ropes Course Equations: Course 2 of 4

Pine Canopy · Grade 6



Name or class code _____ Date _____

Your trip

1. Solve each checkpoint. Show your thinking in the space beside the question.
2. Circle, write or fill in your answer on the question itself, then mark that checkpoint on the trip map.
3. Checkpoint 5 has two parts. Answer Part A, then Part B.
4. Your teacher checks each checkpoint. If you missed one, your teacher gives you the clue and you try again. Keep your first answer; write the new one beside it with a star (★).

1	2	3	4	5
Rope Ladder	**Overhead Traverse**	**Swinging Logs**	**Balance Beam & Zip Line**	**Bridge & Cargo Net**
☐ done ☐ fixed ★	☐ done ☐ fixed ★	☐ done ☐ fixed ★	☐ done ☐ fixed ★	☐ A done ☐ B done ☐ fixed ★

1 Rope Ladder

Variables in context

A route has 12 stations. A group has completed c stations and has 5 stations left.

Build c + [first slot] = [second slot]. Put one number in each slot; leave one card unused.

Write each card in a box. One card is not used.

12 7 5

First slot _____ Second slot _____

2 Overhead Traverse

Inequalities in context

A trail-map model needs a cord longer than 2.5 meters. Let c be the cord length in meters.

Build an inequality for the requirement.

Circle one choice in each box.

The cord lengths that meet the requirement satisfy c [< / > / =] [5 / 0.4 / 2.5].

3 Swinging Logs

One-step multiplication equations

Three pots hold equal amounts of paint. Together they hold 7.5 liters. The equation $3q = 7.5$ models the amount q in each pot.

How many liters are in each pot?

Answer: _____ liters

Write a number only. Fractions and decimals are accepted. Leave out units.

4 Balance Beam & Zip Line

Strict inequalities

A puzzle card gives the rule $x > 3$.

Which graph represents every solution of the rule?

A



B



C



5 Bridge & Cargo Net

One-step equation reasoning

A model trail has a short section of 2.75 meters and a long section of x meters. Their total is 8 meters: $x + 2.75 = 8$.

Part A

Find x, the length of the long section.

Answer: _____ meters

Write a number only. Fractions and decimals are accepted. Leave out units.

Part B

A student reports x = 10.75. Which error could produce that answer?

(A) They added instead of subtracting the known length.

(B) They subtracted the length instead of adding it.

(C) They divided instead of multiplying the known length.

Course Talk (bonus, not scored): traverse

To **traverse** is to move across something. On the overhead traverse, the climber moves sideways along the bar, one hand at a time.

How does the climber traverse the overhead bar?

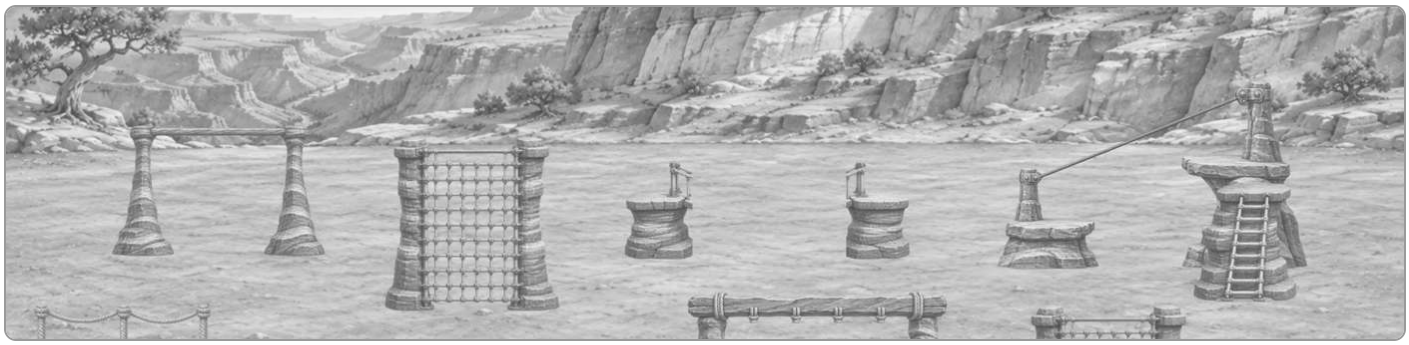
_____

_____

POLE MOUNTAIN LEARNING · PRINTABLE · NO DEVICE NEEDED

Ropes Course Equations: Course 3 of 4

Moab Canyon · Grade 6



Name or class code _____ Date _____

Your trip

1. Solve each checkpoint. Show your thinking in the space beside the question.
2. Circle, write or fill in your answer on the question itself, then mark that checkpoint on the trip map.
3. Checkpoint 5 has two parts. Answer Part A, then Part B.
4. Your teacher checks each checkpoint. If you missed one, your teacher gives you the clue and you try again. Keep your first answer; write the new one beside it with a star (★).

① Stairs & Beam	② Stone Steps	③ Cargo Net	④ Ladder & Zip Line	⑤ Bridge, Net & Traverse
☐ done ☐ fixed ★	☐ done ☐ fixed ★	☐ done ☐ fixed ★	☐ done ☐ fixed ★	☐ A done ☐ B done ☐ fixed ★

① Stairs & Beam

Expressions in context

A supply crate starts with b trail markers. A helper takes 4 markers from it. The rest are shared equally between 2 teams.

Choose the expression for the number of markers each team receives.

Ⓐ $(b \div 2) - 4$

Ⓑ $2 \times (b - 4)$

Ⓒ $(b - 4) \div 2$

2 Stone Steps

Parts of expressions

A puzzle card shows 6 + 3n.

Complete both statements about the expression.

Circle one choice in each box.

The coefficient (the number multiplying the variable) of n is [3 / 6 / 9]. The expression means

- ○ three times the sum of six and n
- ○ six times n, then add three
- ○ six plus three times n

3 Cargo Net

Evaluate expressions

The next card uses $5 + 2z^2$. Use z = 3.

Write the value of the expression.

Answer: _____

Write a number only. Fractions and decimals are accepted. Leave out units.

4 Ladder & Zip Line

Equivalent expressions

The card shows 3(2 + y).

Circle exactly TWO expressions that have the same value as the card for every value of the variable.

- [A] 3y + 6
- [B] 6 + y
- [C] 3y + 2
- [D] 6 + 3y
- [E] 9y

5 Bridge, Net & Traverse

Strict inequalities

Use the rule $x > 2$ for both parts.

Part A

Does each value satisfy the rule?

Mark one box in each row.

	Yes	No
$x = 1.5$	☐	☐
$x = 2$	☐	☐
$x = 2.5$	☐	☐

Part B

Why does a graph of this rule use an open dot?

(A) The boundary value is allowed.

(B) The boundary value must be left out.

(C) All decimal values must be left out.

Course Talk (bonus, not scored): pillar

A **pillar** is a tall, strong column that holds something up. On this course, a rock pillar holds up each end of the bridge.

What holds up the bridge on the Moab Canyon course?

_____

_____

POLE MOUNTAIN LEARNING · PRINTABLE · NO DEVICE NEEDED

Ropes Course Equations: Course 4 of 4

Alpine · Grade 6



Name or class code _____ Date _____

Your trip

1. Solve each checkpoint. Show your thinking in the space beside the question.
2. Circle, write or fill in your answer on the question itself, then mark that checkpoint on the trip map.
3. Checkpoint 5 has two parts. Answer Part A, then Part B.
4. Your teacher checks each checkpoint. If you missed one, your teacher gives you the clue and you try again. Keep your first answer; write the new one beside it with a star (★).

1	2	3	4	5
Stairs & Rope Traverse	**Hanging Logs**	**Bridges & Stairs**	**Cargo Net**	**Steps & Zip Line**
☐ done	☐ done	☐ done	☐ done	☐ A done ☐ B done
☐ fixed ★	☐ fixed ★	☐ fixed ★	☐ fixed ★	☐ fixed ★

1 Stairs & Rope Traverse

Variables in context

Each storage tray holds 8 markers. There are t full trays holding 40 markers altogether.

Build [first slot] × t = [second slot]. Put one number in each slot; leave one card unused.

Write each card in a box. One card is not used.

32 **8** **40**

First slot _____ Second slot _____

2 Hanging Logs

Inequalities in context

A paint sample must contain less than $\frac{3}{4}$ liter. Let p be its volume in liters.

Build an inequality for the requirement.

Circle one choice in each box.

The sample volumes that meet the requirement satisfy p [= / > / <] [$\frac{3}{4}$ / $\frac{1}{4}$ / $\frac{4}{3}$].

3 Bridges & Stairs

One-step multiplication equations

Four equal lengths of trim measure 3 meters altogether. Each length is d meters, so 4d = 3.

Solve for d, the length of one piece.

Answer: _____ meters

Write a number only. Fractions and decimals are accepted. Leave out units.

4 Cargo Net

Strict inequalities

A puzzle card gives the rule x < 5.

Which graph represents every solution of the rule?

A



B



C



5 Steps & Zip Line

One-step equation reasoning

Five equal cords for a model measure 8.75 meters altogether. Each cord is r meters long: 5r = 8.75.

Part A

Find r, the length of one cord.

Answer: _____ meters

Write a number only. Fractions and decimals are accepted. Leave out units.

Part B

A student reports r = 43.75 after calculating 8.75 × 5. Which change fixes that method?

(A) Subtract 5 from 8.75 to undo the equal groups.

(B) Divide 8.75 by 5 to find the size of one group.

(C) Add 5 to 8.75 so the total includes all five equal groups.

Course Talk (bonus, not scored): suspended

Something **suspended** hangs from above instead of resting on the ground. On the Alpine course, the logs and steps are suspended from ropes, so they swing when you step on them.

Why do the suspended steps swing when you step on them?

_____

_____