POLE MOUNTAIN LEARNING · PRINTABLE · NO DEVICE NEEDED

Terrain Park Functions: Ride 1 of 2

The six stops of the course · Grade 9



Name or class code _____ Date _____

Your ride

1. Work each stop in order. Show your thinking in the Work box.
2. Circle the letter or write your answer on the line, then tick that stop on the map.
3. Several stops have Part A and Part B (and sometimes Part C). Answer every part.
4. Your teacher checks each stop. If you missed one, your teacher reads you the clue and you try once more. Keep your first answer; write the new one beside it with a star (★).
5. A calculator is allowed.

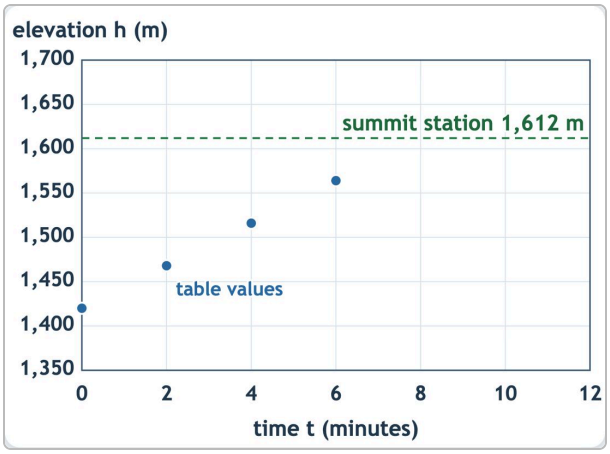
① Chairlift	② Groomed Run	③ Rail	④ Big Jump	⑤ Halfpipe	⑥ Two-Rider Bonus
□ A □ B □ fixed ★	□ A □ B □ fixed ★	□ done □ fixed ★	□ A □ B □ C □ fixed ★	□ done □ fixed ★	□ A □ B □ fixed ★

① Chairlift: Model the chairlift

F.LE.2

The chair leaves the loading station at t = 0 minutes. The table shows its elevation as it rides. The summit station is at 1,612 m.

t (minutes)	0	2	4	6
h (m)	1,420	1,468	1,516	1,564



Part A. Write an equation for the chair's elevation h, in meters, after t minutes.

Write it as h = … using t.

Answer: _____

Part B. Use your equation to predict when the chair reaches the summit station at 1,612 m.

Write a number only. A decimal is fine.

Answer: _____ min

Work

2 Groomed Run: Find where the trail crosses the lift line

A.CED.1 · A.REI.3

A rider on Glade leaves the fork at an elevation of 1,840 m. Glade drops 0.2 m in elevation for every horizontal meter. The lift line crosses Glade where the elevation is 1,813 m. Let x be the horizontal distance from the fork, in meters.

Part A. Which equation can you solve to find x, the horizontal distance from the fork where the rider reaches the lift line?

(A) $1840 - 0.2x = 1813$

(B) $1840 + 0.2x = 1813$

(C) $0.2x = 1813$

(D) $1840 - x = 1813$

Part B. Solve the equation. How far from the fork, in horizontal meters, does the rider reach the lift line?

Write a number. A decimal or a fraction is fine.

Answer: _____ m

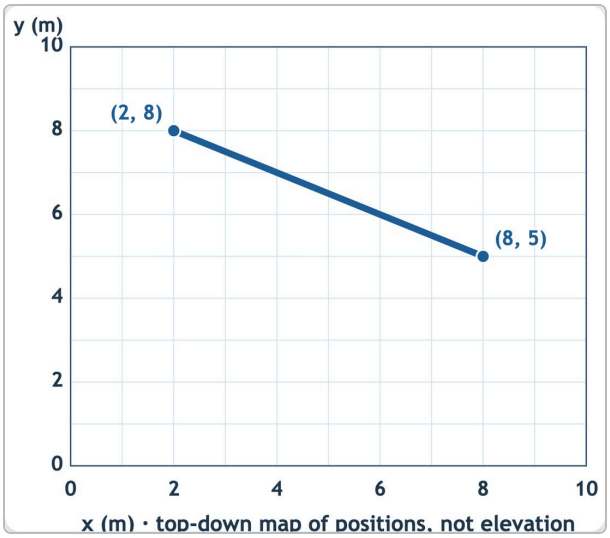
Work

3 Rail: Line up with the rail

A.CED.2

The map is a top-down view: x and y are positions in meters, not elevation.

Marked points: the rail passes through (2, 8) and (8, 5).



The rail passes through the two marked points. Write an equation for the rail.

Write an equation using x and y, such as y = mx + b with your numbers. A fraction or a decimal is fine.

Answer:

Work

4 Big Jump: Read the flight

F.IF.7a

Which flight lands in the marked zone? Use your chosen equation to predict the landing distance and maximum height.

The board leaves the lip at x = 0. x is the distance from the lip in meters; y is the height above the landing in meters. The landing zone is 9 m to 11 m.

Part A. Which flight lands in the landing zone?

(A) $y = \frac{x(8 - x)}{4}$

(B) $y = \frac{x(10 - x)}{4}$

(C) $y = \frac{x(12 - x)}{6}$

Part B. Using the flight you chose, how far from the lip does the board land? (the positive zero)

Write a number only. A decimal is fine.

Answer: _____ m

Part C. Using the flight you chose, what is the board's maximum height?

Write a number only. A decimal is fine.

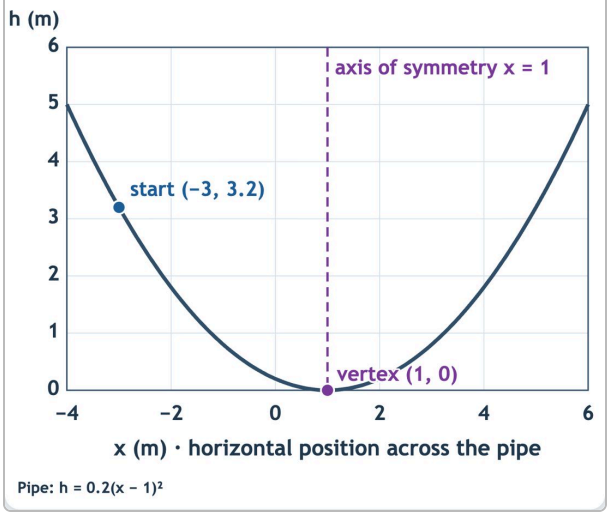
Answer: _____ m

Work

5 Halfpipe: Find the matching height

F.IF.7a

Cross-section: $h = 0.2(x - 1)^2$, where x is horizontal position in meters and h is meters above the lowest point. Vertex (1, 0). The rider starts at (−3, 3.2).



The rider starts at x = −3. At what x-coordinate on the opposite wall is the height the same?

Write a number. A decimal or a fraction is fine; use a minus sign for a negative x.

Answer: _____

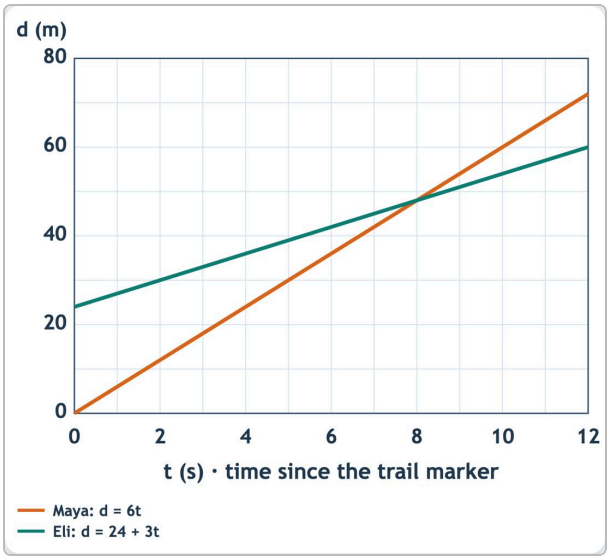
Work

6 Two-Rider Bonus: Find where the riders meet

A.REI.6

Maya and Eli ride in the same direction in separate lanes. Their positions are measured from the same trail marker, starting at t = 0. When are they side by side, and how far are they from the marker?

Maya (orange jacket): d = 6t · **Eli (teal jacket):** d = 24 + 3t (d in meters, t in seconds)



Part A. At what time t are they side by side?

Write a number. A decimal or a fraction is fine.

Answer: _____ s

Part B. How far from the trail marker are they then?

Write a number. A decimal or a fraction is fine.

Answer: _____ m

Work

Second try (★), only if your teacher gives you the clue

POLE MOUNTAIN LEARNING · PRINTABLE · NO DEVICE NEEDED

Terrain Park Functions: Ride 2 of 2

Fresh check: the same six stops with new numbers · Grade 9



Name or class code _____ Date _____

Your ride

1. Work each stop in order. Show your thinking in the Work box.
2. Circle the letter or write your answer on the line, then tick that stop on the map.
3. Several stops have Part A and Part B (and sometimes Part C). Answer every part.
4. Answer each part once. Your teacher will check your answers after you finish this ride.
5. A calculator is allowed.

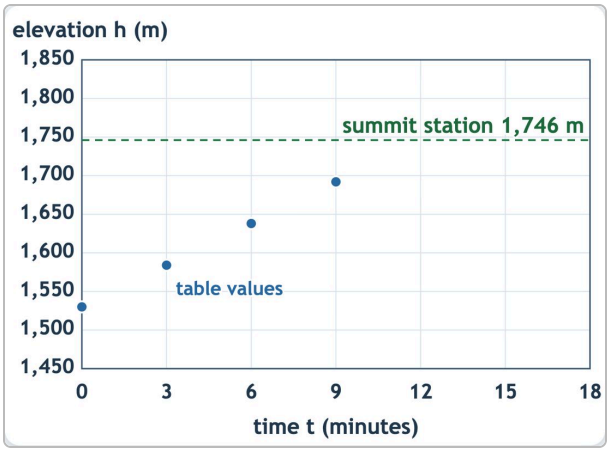
① Chairlift	② Groomed Run	③ Rail	④ Big Jump	⑤ Halfpipe	⑥ Two-Rider Bonus
□ A □ B	□ A □ B	□ done	□ A □ B □ C	□ done	□ A □ B

① Chairlift: Model the chairlift

F.LE.2

The chair leaves the loading station at t = 0 minutes. The table shows its elevation as it rides. The summit station is at 1,746 m.

t (minutes)	0	3	6	9
h (m)	1,530	1,584	1,638	1,692



Part A. Write an equation for the chair's elevation h, in meters, after t minutes.

Write it as h = … using t.

Answer: _____

Part B. Use your equation to predict when the chair reaches the summit station at 1,746 m.

Write a number only. A decimal is fine.

Answer: _____ min

Work

2 Groomed Run: Find where the trail crosses the lift line

A.CED.1 · A.REI.3

A rider on Ridge leaves the fork at an elevation of 1,920 m. Ridge drops 0.22 m in elevation for every horizontal meter. The lift line crosses Ridge where the elevation is 1,887 m. Let x be the horizontal distance from the fork, in meters.

Part A. Which equation can you solve to find x, the horizontal distance from the fork where the rider reaches the lift line?

(A) $1920 + 0.22x = 1887$

(B) $0.22x = 1887$

(C) $1920 - 0.22x = 1887$

(D) $1920 - x = 1887$

Part B. Solve the equation. How far from the fork, in horizontal meters, does the rider reach the lift line?

Write a number. A decimal or a fraction is fine.

Answer: _____ m

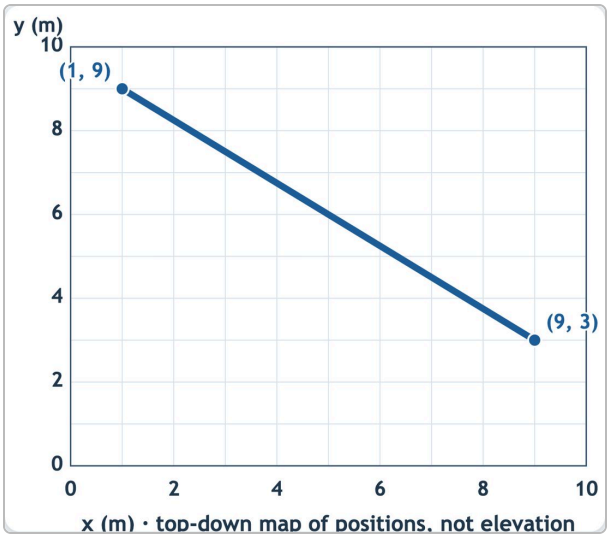
Work

3 Rail: Line up with the rail

A.CED.2

The map is a top-down view: x and y are positions in meters, not elevation.

Marked points: the rail passes through (1, 9) and (9, 3).



The rail passes through the two marked points. Write an equation for the rail.

Write an equation using x and y, such as y = mx + b with your numbers. A fraction or a decimal is fine.

Answer:

_____

Work

4 Big Jump: Read the flight

F.IF.7a

The crew moved the landing zone. Choose a flight for this new setup, then predict its landing distance and maximum height.

The board leaves the lip at x = 0. x is the distance from the lip in meters; y is the height above the landing in meters. The landing zone is 11 m to 13 m.

Part A. Which flight lands in the landing zone?

(A) $y = \frac{x(12 - x)}{4.5}$

(B) $y = \frac{x(10 - x)}{5}$

(C) $y = \frac{x(14 - x)}{7}$

Part B. Using the flight you chose, how far from the lip does the board land? (the positive zero)

Write a number only. A decimal is fine.

Answer: _____ m

Part C. Using the flight you chose, what is the board's maximum height?

Write a number only. A decimal is fine.

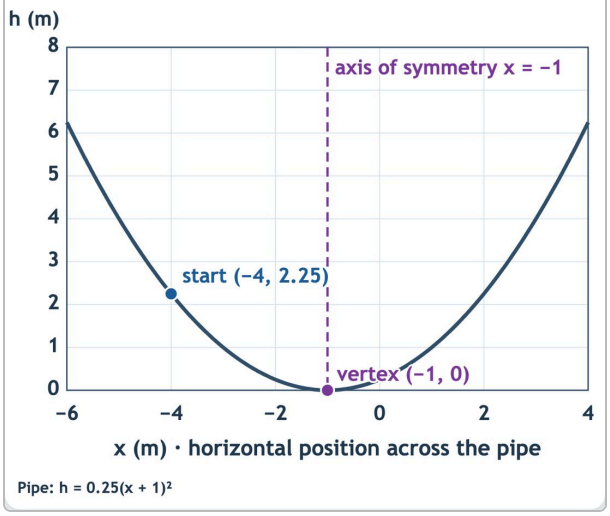
Answer: _____ m

Work

5 Halfpipe: Find the matching height

F.IF.7a

Cross-section: $h = 0.25(x + 1)^2$, where x is horizontal position in meters and h is meters above the lowest point. Vertex (−1, 0). The rider starts at (−4, 2.25).



The rider starts at x = −4. At what x-coordinate on the opposite wall is the height the same?

Write a number. A decimal or a fraction is fine; use a minus sign for a negative x.

Answer: _____

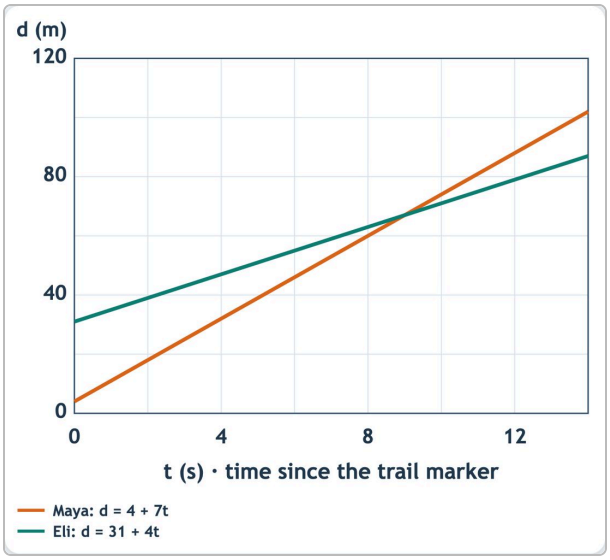
Work

6 Two-Rider Bonus: Find where the riders meet

A.REI.6

Maya and Eli ride in the same direction in separate lanes. Their positions are measured from the same trail marker, starting at t = 0. When are they side by side, and how far are they from the marker?

Maya (orange jacket): d = 4 + 7t · **Eli (teal jacket):** d = 31 + 4t (d in meters, t in seconds)



Part A. At what time t are they side by side?

Write a number. A decimal or a fraction is fine.

Answer: _____ s

Part B. How far from the trail marker are they then?

Write a number. A decimal or a fraction is fine.

Answer: _____ m

Work