1. Decimals on a number line: compare and order



Name _____ Class _____ Date _____

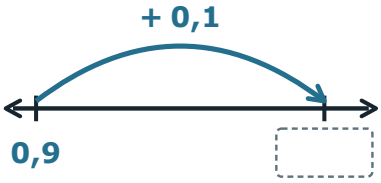
Max and Teddy's stop · Innsbruck · the Golden Roof. In the old town of Innsbruck, Max walks along the cobbles with his guidebook open at the Golden Roof, a carved balcony under a roof of shining golden tiles, and Teddy trots beside him, looking up.

Today: On a number line the greater decimal stands further to the right: compare the ones first, then the **tenths**, then the **hundredths**.

Warm-up Get to 1, then find the distance

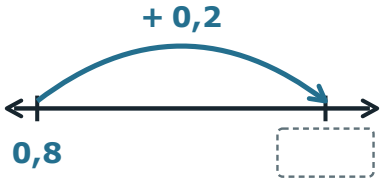
Each answer helps with the next one. Fill in the model, then write the equation.

1 **a)** 0,9 + 0,1



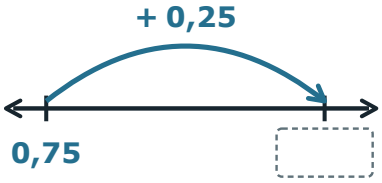
0,9 + 0,1 = _____

b) 0,8 + 0,2



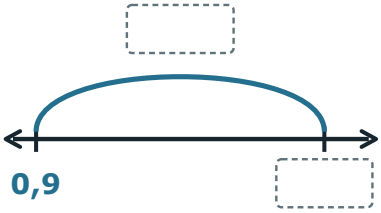
0,8 + 0,2 = _____

c) 0,75 + 0,25



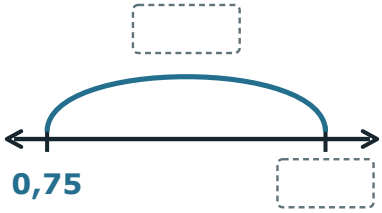
0,75 + 0,25 = _____

d) _____ − 0,9



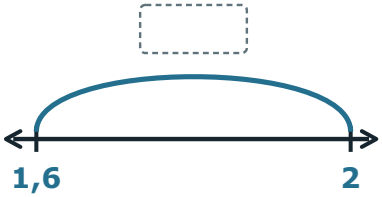
_____ − 0,9 = _____

e) _____ − 0,75 (from c)



_____ − 0,75 = _____

f) 2 − 1,6

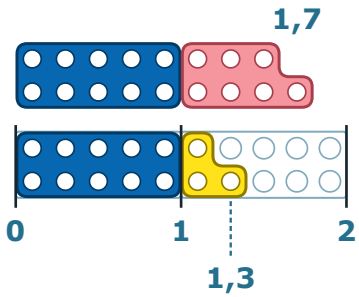


2 − 1,6 = _____

KNOWLEDGE Compare on the line and in the chart

WORKED EXAMPLE

Felix tells Max about two walks: 1,3 km to the cable car and 1,7 km along the river. A 10-shape is 1 whole and each hole is one tenth. Where does each walk end? Which walk is longer?



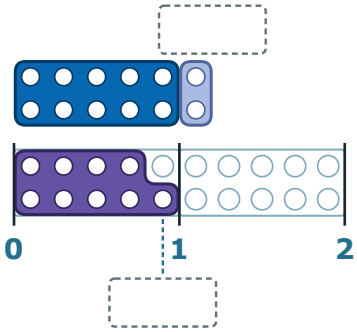
1. The 10-shape and the 3-shape in the track end at **1,3**.
2. The 7-shape above ends at **1,7**, further right. Both have 1 whole, so the tenths decide: 1,3 km **<** 1,7 km.

1,3 km < 1,7 km

Decimals on a number line: compare and order

2 ★ A 9-shape lies in the track. A 10-shape and a 2-shape wait above it. **Where does each end?** Then write <, > or = between the two numbers.

_____ _____ _____



3 ★ **a)** Compare **305 128** and **305 182**. Write what each marked place is worth, then <, > or =.

	HTh	TTh	Th	H	T	O
	3	0	5	1	2	8
	3	0	5	1	8	2

marked places: _____ _____ _____

305 128 _____ 305 182

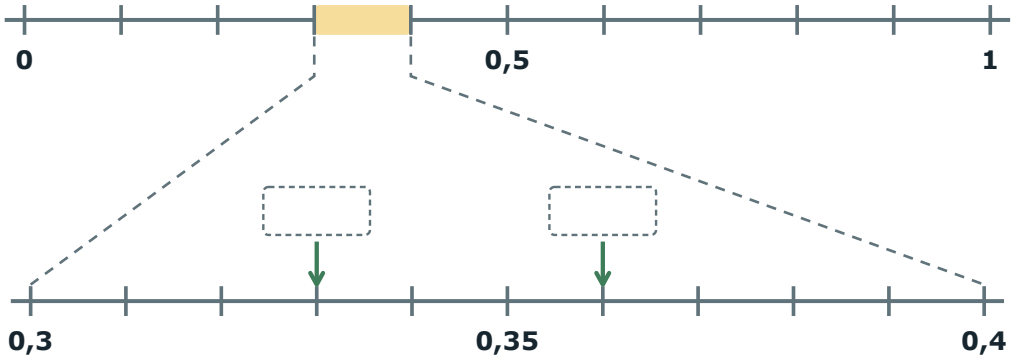
b) The chart goes on after the ones: **tenths** and **hundredths**. Compare **30,51** and **30,58**. Write what each marked place is worth, then <, > or =.

	HTh	TTh	Th	H	T	O	t	h
					3	0 ,	5	1
					3	0 ,	5	8

marked places: _____ _____ _____

30,51 _____ 30,58

4 ★ The tenth from 0,3 to 0,4 is opened into hundredths. **What decimals do the arrows show?** The one further to the right is the greater.



_____ < _____

5 ★ Write what each marked place is worth, then <, > or =.

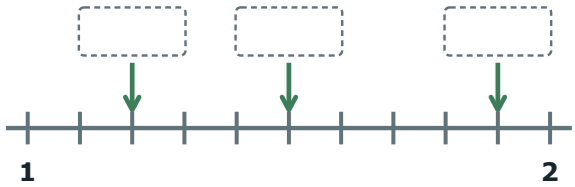
	O	t	h
	0 ,	8	5
	0 ,	5	9

marked places: _____ _____ _____

0,85 _____ 0,59

6 ★ The number line goes from 1 to 2 in steps of 0,1. **What decimals do the arrows show?** Write them from the left.

_____ < _____ < _____



Decimals on a number line: compare and order

7 ★ Fill in or finish the model, then write the equation.

a) What decimals do the arrows show?



_____ < _____

b) Compare **4,52** and **4,09**. Write <, > or =.

	O	t	h
☐	4 ,	5	2
	4 ,	0	9

decided by the _____

4,52 _____ 4,09

c) Compare 3,6 and 3,58: write the 0 first, then <, > or =.

	O	t	h
☐	3 ,	6	
	3 ,	5	8

3,6 = _____

compare: 3,6 _____ 3,58

d) Order the numbers from the smallest to the greatest.

O	t	h
5 ,	3	8
5 ,	3	
5 ,	3	5
5 ,	0	8

4 numbers, smallest first: _____ < _____ < _____ < _____

8 ★ Write **16,4** and **sixteen and four hundredths** in numerals in the place-value chart. Then write <, > or =.

	T	O	t	h
☐		,		
		,		

sixteen and four hundredths = _____

compare: 16,4 _____ _____

9 ★ Write **29,5** and **twenty-nine and fifty hundredths** in numerals in the place-value chart. Then write <, > or =.

	T	O	t	h
☐		,		
		,		

twenty-nine and fifty hundredths = _____

compare: 29,5 _____ _____

Decimals on a number line: compare and order

10 ★

Put these 4 in order, starting with the greatest: **6,18**; **7,4**; **6,81**; **7,05**.

	O		t	h
1		,		
2		,		
3		,		
4		,		

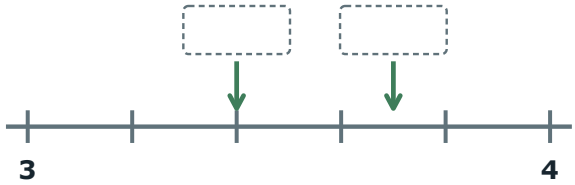
4 numbers, greatest first: _____ > _____ > _____ > _____

11 ★

A number line goes from 3 to 4. **What decimals do the arrows show?** Work out what each step is worth first.

1 ÷ 5 = _____

the arrows: _____ < _____



APPLICATION **Under the Golden Roof** Use the model, then write your own number sentence.

12 ★★

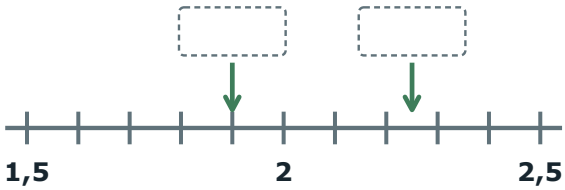
Felix's map gives four walks from the Golden Roof: to the cable car **1,25 km**, to the river **1,5 km**, to the church with the green dome **1,05 km** and to the park **1,52 km**. **Write the distances in order, starting with the shortest.**

	O		t	h
1		,		
2		,		
3		,		
4		,		

4 walks, shortest first: _____ < _____ < _____ < _____

13 ★★

a) The red cable car in Max's guidebook stops at a middle station **1,9 km** high and at a top station **2,25 km** high. Max marks both heights on a number line. **What height does each arrow show?** Write them from the left.



_____ km < _____ km

b) Which station is higher?

○ the middle station ○ the top station

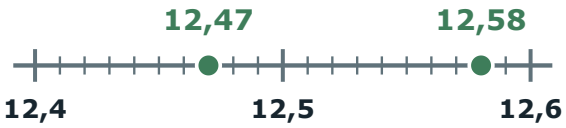
Decimals on a number line: compare and order

14 ★★ The top station is **2,25 km** high and the middle station **1,9 km** high. **How much higher is the top station?** Count up from 1,9 km by way of 2 km.



_____ = _____ km

15 ★★ On the cobbles Max times Teddy's run to a café umbrella on his blue wristwatch. Teddy's time has 2 decimal places. It is more than **12,47 seconds** but less than **12,58 seconds**, and its hundredths digit is **4**. **What is Teddy's time?**



12,47 s < _____ s < 12,58 s

16 ★★ At a café under the arches an apple strudel costs **R12,50** and a pretzel costs **R12,05**. Max writes both prices in a place-value chart. **Which costs less?** Write <, > or =.

decided by the _____

R12,50 _____ R12,05

	T	O	t	h
☐	1	2 ,	5	0
	1	2 ,	0	5

REASONING **Which is greater?** Decide, then explain how you know.

17 ★★★ **a)** On the cobbles Teddy jumps twice for a treat, and Max measures the jumps: **0,35 m** and **0,4 m**. Write the 0 that fills the empty place of 0,4, then <, > or =.

	O	t	h
☐	0 ,	3	5
	0 ,	4	

0,4 = _____

compare: 0,35 _____ 0,4

b) Felix says: "The 0,35 m jump is longer, because 35 is greater than 4." Max says the 0,4 m jump is longer. **Who is right?**

○ Felix ○ Max

Explain: _____

18 ★★★ **a)** Felix makes two numbers with counters on a place-value chart: **0,6** is 6 counters in the tenths, and **0,43** is 4 counters in the tenths and 3 in the hundredths, 7 counters in all. Max writes how many counters stand in each column. **Compare 0,6 and 0,43 on the chart.**

	O	t	h
☐	0 ,	6	
	0 ,	4	3

decided by the _____

0,6 _____ 0,43

b) Felix says: "0,43 is greater, because it has more counters." **Do you agree with Felix?**

○ Yes, I agree with Felix

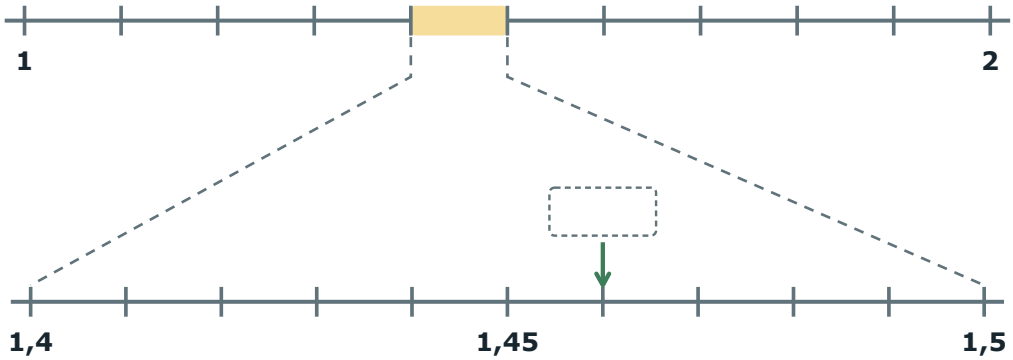
○ No, I do not agree

Explain: _____

Decimals on a number line: compare and order

19 ★★★

a) Max writes the lengths of three window boxes on the balcony in order: **1,45 m < ▢ < 1,5 m**. Here the tenth from 1,4 to 1,5 is opened into hundredths. **What length does the arrow show?** It fits in Max's order.



1,45 m < _____ m < 1,5 m

b) Which of these could the missing length be too? Circle every card that fits.

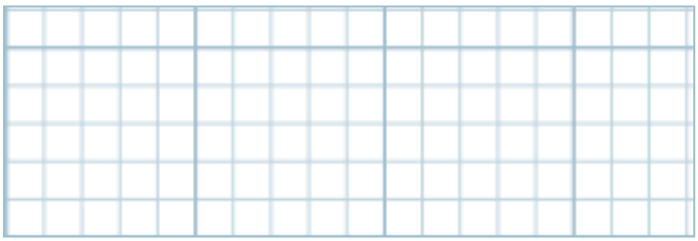
1,48 m	**1,6 m**	**1,49 m**	**1,4 m**	**1,05 m**

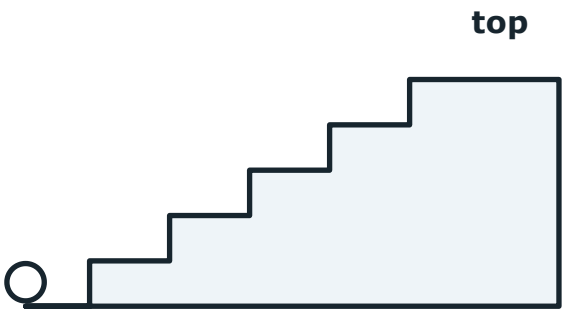
Explain: _____

20 PROBLEM OF THE DAY **Up the steps**

Under the Golden Roof in Innsbruck, Felix lets Max climb the old wooden stairs inside the house up to the carved balcony: a flight of 5 steps, with Teddy at his heels. With each jump Max goes up 1, 2 or 3 steps. Two ways are different if the jumps come in a different order.

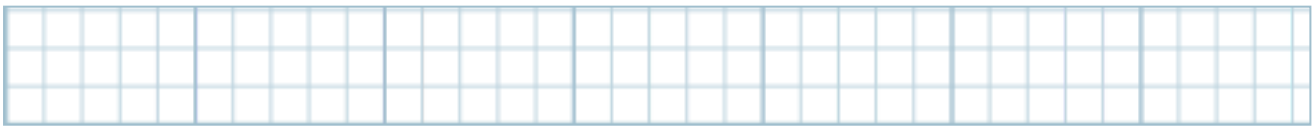
Find every different way to the top. How can you be sure that you have them all?





Think further: How many ways are there for 6 steps? For 7? Find them from the answers before, without listing.

Explain one thing you learned.



I can do this: ◯ independently ◯ with help ◯ I need more practice