Build independence

LESSON 1.1 / Real numbers and the number line

Name: _____ Date: _____

Attempt first. Show your method. Use a notebook for extended explanations.

01 / Number sets

Give the most specific set for -12. Then name its larger sets.

02 / Number sets

Classify 0 using the convention in this course.

03 / Number sets

Classify $\sqrt{36}$ in every applicable set.

04 / Number sets

Write 0.375 as a simplified fraction and classify it.

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05 / Rational or irrational

Is $0.\overline{3}$ rational even though it never ends?

06 / Rational or irrational

Classify $\sqrt{2}$ and the exact decimal 1.414.

07 / Rational or irrational

Is $\pi = 3.14$ a correct statement? Repair it.

08 / Rational or irrational

A decimal has a 1 followed by one zero, then a 1 followed by two zeros, then a 1 followed by three zeros, and so on forever: 0.101001000100001…. Is it rational?

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09 / Order

Which is greater: -7 or -2? Explain using position.

10 / Order

Which is smaller: -0.8 or $-\frac{3}{4}$?

11 / Order

Order $-\frac{5}{4},\ -1.2,\ -1.35$ from least to greatest.

12 / Order

Order $-\frac{2}{3},\ -0.7,\ -\frac{3}{5}$ from least to greatest.

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13 / Number-line reasoning

Place $-1.5, 0, \frac{1}{2}, 0.5$ on a scaled number line. How many distinct points are needed?

14 / Opposites

Give the opposite and the absolute value of -4.5.

15 / Absolute value

Evaluate $|2 - 11|$.

16 / Absolute value

Evaluate $|-8| - |3 - 9|$.

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17 / Absolute value

Evaluate $-|-8|$.

18 / Positions

Find every real coordinate x with $|x| = 4$.

19 / Positions

Find every coordinate with $|x| = 0$. Can any coordinate have $|x| = -3$?

20 / Distance

Find the distance between -6 and -2.

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21 / Change and distance

A lift moves directly from floor 5 to floor -3 with equally spaced floors. Find signed change and distance in floor intervals.

22 / Change and distance

A temperature changes from -6°C to 2°C. Find its signed change. What changes if the readings occur in reverse order?

23 / Challenge

Can two irrational numbers have a rational sum? Give a counterexample to “always irrational”.

24 / Challenge

A point is 4 units from coordinate -1. Find all possible coordinates and check both distances.

Sketch, label & justify

LESSON 1.1 / Real numbers and the number line

Use these spaces for scaled number lines, workings and explanations.

Diagram / givens / conclusion / reason

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