

Mathematics
Grade-Level Expectations: Grade 10

Number and Number Relations

1. Simplify and determine the value of radical expressions (N-2-H) (N-7-H)
2. Predict the effect of operations on real numbers (e.g., the quotient of a positive number divided by a positive number less than 1 is greater than the original dividend) (N-3-H) (N-7-H)
3. Define *sine*, *cosine*, and *tangent* in ratio form and calculate them using technology (N-6-H)
4. Use ratios and proportional reasoning to solve a variety of real-life problems including similar figures and scale drawings (N-6-H) (M-4-H)

Algebra

5. Write the equation of a line of best fit for a set of 2-variable real-life data presented in table or scatter plot form, with or without technology (A-2-H) (D-2-H)
6. Write the equation of a line parallel or perpendicular to a given line through a specific point (A-3-H) (G-3-H)

Measurement

7. Find volume and surface area of pyramids, spheres, and cones (M-3-H) (M-4-H)
8. Model and use trigonometric ratios to solve problems involving right triangles (M-4-H) (N-6-H)

Geometry

9. Construct 2- and 3-dimensional figures when given the name, description, or attributes, with and without technology (G-1-H)
10. Form and test conjectures concerning geometric relationships including lines, angles, and polygons (i.e., triangles, quadrilaterals, and n -gons), with and without technology (G-1-H) (G-4-H) (G-6-H)
11. Determine angle measurements using the properties of parallel, perpendicular, and intersecting lines in a plane (G-2-H)
12. Apply the Pythagorean theorem in both abstract and real-life settings (G-2-H)
13. Solve problems and determine measurements involving chords, radii, arcs, angles, secants, and tangents of a circle (G-2-H)
14. Develop and apply coordinate rules for translations and reflections of geometric figures (G-3-H)
15. Draw or use other methods, including technology, to illustrate dilations of geometric figures (G-3-H)
16. Represent and solve problems involving distance on a number line or in the plane (G-3-H)
17. Compare and contrast inductive and deductive reasoning approaches to justify conjectures and solve problems (G-4-H) (G-6-H)
18. Determine angle measures and side lengths of right and similar triangles using trigonometric ratios and properties of similarity, including congruence (G-5-H) (M-4-H)
19. Develop formal and informal proofs (e.g., Pythagorean theorem, flow charts, paragraphs) (G-6-H)

Data Analysis, Probability, and Discrete Math

20. Show or justify the correlation (match) between a linear or non-linear data set and a graph (D-2-H) (P-5-H)
21. Determine the probability of conditional and multiple events, including mutually and non-mutually exclusive events (D-4-H) (D-5-H)
22. Interpret and summarize a set of experimental data presented in a table, bar graph, line graph, scatter plot, matrix, or circle graph (D-7-H)

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23. Draw and justify conclusions based on the use of logic (e.g., conditional statements, converse, inverse, contrapositive) (D-8-H) (G-6-H) (N-7-H)
24. Use counting procedures and techniques to solve real-life problems (D-9-H)
25. Use discrete math to model real life situations (e.g., fair games, elections) (D-9-H)

Patterns, Relations, and Functions

26. Generalize and represent patterns symbolically, with and without technology (P-1-H)
27. Translate among tabular, graphical, and symbolic representations of patterns in real-life situations, with and without technology (P-2-H) (P-3-H) (A-3-H)