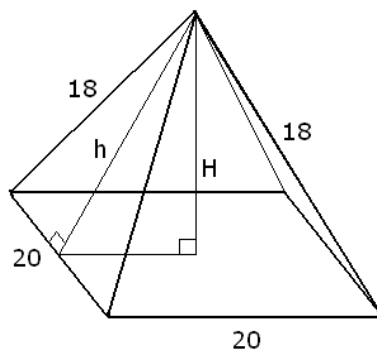


Review Problems

- Re-write the decimal $0.\overline{174}$ as a fraction of two integers.
- Simplify each of the following expressions.
 - $(5a - 1)^2$
 - $(3x^5 + 4y)(3x^5 - 4y)$
 - $\frac{3}{\sqrt{5}}$
 - $\frac{2}{\sqrt{7} + 1}$
 - $\sqrt{125} - 3\sqrt{80} + \sqrt{45}$
 - $(2 - \sqrt{3})(5\sqrt{3} + 1)$
 - $\frac{1}{\sqrt{10} - 3}$
 - $\frac{6}{2 - \sqrt{12}}$
 - $(\sqrt{7} - 2)^2$
 - $(\sqrt{3} - 1)^3$
- Rationalize the denominator in each of the following expressions.
 - $\frac{3}{\sqrt{5}}$
 - $\frac{1}{\sqrt{10} - 3}$
 - $\frac{2}{\sqrt{7} + 1}$
 - $\frac{6}{2 - \sqrt{12}}$
- Find the exact value of $x^2 - 4x + 6$ if $x = 2 - \sqrt{3}$.
- Factor $13x + 2x^2 - 24$ by completing the square.
- Completely factor each of the following.
 - $x^3 + 8y^3$
 - $27a^3 - 1$
 - $mx - 10y - 5x + 2my$
 - $32x^4 - 2$
- Solve each of the following equations. Make sure to check your solution(s).
 - $2x^3 = 20x^2 + 1750x$
 - $\frac{3x + 17}{2} = x - 1 + \frac{x + 19}{2}$
 - $\frac{2}{3}(x - 7) = \frac{4}{5}(x + 1)$
 - $7x^2 + (x + 3)(2x - 1) = (3x + 1)^2$
 - $8a + 2a^2 = 42$
 - $8x^3 = 50x^2$
 - $8p^3 = 50p$
 - $2 - (3 - x)(2x + 5) = (x - 1)(2x - 1)$
- Graph the parabola $y = -8x + x^2 + 15$. Clearly label the coordinates of five points on the parabola, including vertex and intercepts.
- One side of a rectangle is 4 ft shorter than three times the other side. Find the sides if the perimeter is 64 ft.
- One side of a rectangle is 4 ft shorter than three times the other side. Find the sides if the area is 84 ft^2 .
- The hypotenuse of a right triangle is 68 cm. The difference between the other two sides is 28 cm. Find the sides of the triangle.
- Find the distance between $(3, 8)$ and $(8, -4)$.
- Find the length of the main diagonal in a rectangular prism with sides 7 m, 8 m, and 10 m long.
- Find the length of the line segments denoted by h and H , based on the picture shown below.



Answers

Quiz 2 will cover all material covered on Quiz 1 and factoring 2, radical expressions, graphs of parabolas, the Pythagorean theorem and linear and quadratic word problems.

1. See handout Decimals and Fractions. $\frac{173}{990}$

2. See handout Radical Expressions.

a) $25a^2 - 10a + 1$ b) $9x^{10} - 16y^2$ c) $-4\sqrt{5}$ d) $9\sqrt{3} - 13$
 e) $11 - 4\sqrt{7}$ f) $-10 + 6\sqrt{3}$

3. See handout Radical Expressions.

a) $\frac{3\sqrt{5}}{5}$ b) $\sqrt{10} + 3$ c) $\frac{\sqrt{7} - 1}{3}$ d) $-\frac{3\sqrt{3} + 3}{2}$

4. See handout Radical Expressions. 5

5. See handout Completing the Square - Part 3. $2(x + 8) \left(x - \frac{3}{2}\right) = (x + 8)(2x - 3)$

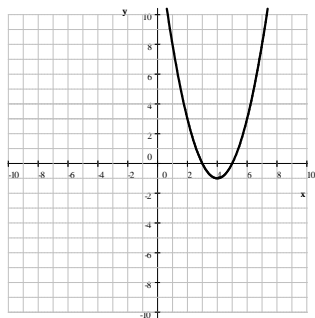
6. See handouts Factoring 1 and Factoring 2.

a) $(x + 2y)(x^2 - 2xy + 4y^2)$ b) $(3a - 1)(9a^2 + 3a + 1)$ c) $(x + 2y)(m - 5)$
 d) $2(4x^2 + 1)(2x - 1)(2x + 1)$

7. See handouts Linear Equations and Factoring 1.

a) 35, 0, and -25 b) identity, all real numbers are solution c) -41
 d) -4 e) -7, 3 f) $\frac{25}{4}, 0$ g) $-\frac{5}{2}, 0, \frac{5}{2}$ h) 7

8. See handout Graph of a Parabola.



9. See handout Wordproblems 1. 9 ft and 23 ft

10. See handouts Factoring 1 and Wordproblems 2. 6 ft and 14 ft

For problems 11-14, see handout Pythagorean Theorem.

11. 32 cm and 60 cm

12. 13 units

13. $\sqrt{213}$ m

14. $h = \sqrt{224} = 4\sqrt{14}$ $H = \sqrt{124} = 2\sqrt{31}$