Pythagorean Theorem, Midpoint, Distance, and Rational Worksheet **Name**_____

If c is the measure of the hypotenuse of a right triangle, find each missing measure.

1) a = 3, b = 4, c = ?

2) a = 6, c = 10, b = ?

3) a = 8, b = 6, c = ?

Determine whether the following side measures would form right triangles. Explain why or why not.

4) 20, 21, 29

5) 15, 30, 34

6) 21, 72, 75

Find the distance between each pair of given points.

7) (1, 5), (3, 1)

8) (−2, −8), (7, −3)

9) (1, 5), (−8, 4)

Find the midpoint of the line segment with the given endpoints.

10) (6, 1), (−2, 5)

11) (4, 3), (−1, 6)

12) (−5, 4), (−6, 3)

Simplify the following rational expressions.

13) $\frac{x^2-25}{x^2-4x-5}$

14) $\frac{5x^2-9x-2}{x^2+4x-12}$

15) $\frac{4x^2-x-3}{4x^2-17x-15}$

16) $\frac{8x^3-10x}{20x^3-25x}$

Multiple or Divide the following rational expressions.

17) $\frac{x^2+6x+8}{2x^2+9x+4}\cdot\frac{2x^2-x-1}{x^2-3x+2}$

18) $\frac{x^2-25}{x+2}\cdot\frac{x^2-4}{x^2-7x+10}$

19) $\frac{x^2+6x+8}{x^2+4x+4}\div\frac{x+4}{x+2}$

20) $\frac{x^2+5x-14}{9x}\div\frac{x^2-8x+12}{3x}$