

Fletcher High School 2022-2023 Geometry Summer Assignment

Complete the following problems on a separate sheet of notebook paper. Include the formula needed for each problem and ALL supporting work for the solution. This assignment will be due the first week of school for extra credit.

Simplify each expression.

1) $-8r(1 - 7r)$

2) $-7(2 - 2r)$

Solve each equation.

3) $x - 5 = 3 - 5x + 3x + 4$

Solve each proportion.

4) $\frac{10}{4} = \frac{x+8}{8}$

5) $\frac{10}{8} = \frac{x-9}{9}$

6) $\frac{6}{10} = \frac{b-2}{6}$

7) $\frac{r+1}{10} = \frac{2}{3}$

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Find the slope of a line parallel to each given line.

8) $y = \frac{3}{5}x$

9) $y = 3x + 5$

Find the slope of each line.

10) $y = -\frac{2}{3}x + 2$

11) $y = \frac{1}{2}x - 5$

Find the slope of a line perpendicular to each given line.

12) $y = -3x - 1$

13) $y = -x - 3$

14) $y = 6x + 1$

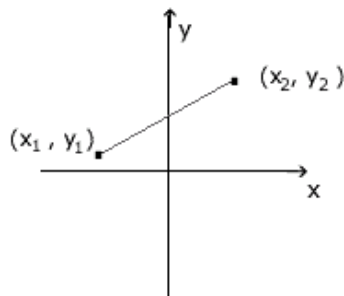
15) $y = -x + 3$

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DISTANCE FORMULA

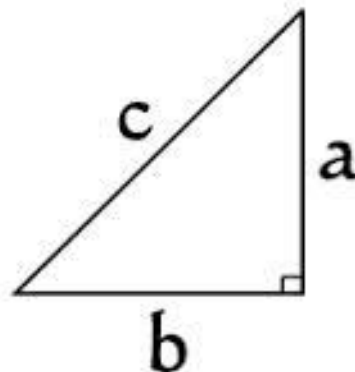
x_2 and y_2 are the x,y coordinates for one point
 x_1 and y_1 are the x,y coordinates for the second point
 d is the distance between the two points

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$



PYTHAGOREAN THEOREM

$$a^2 + b^2 = c^2$$

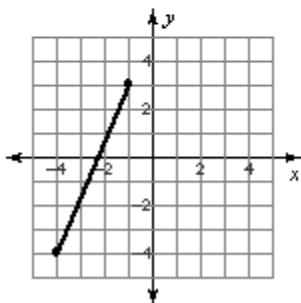


Use the Distance Formula to find the length between the two points in problems 16 and 17.
Use Pythagorean Theorem to find the length of each graphed line in problems 18 and 19.

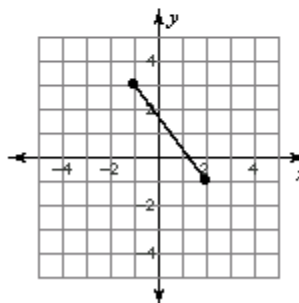
16) $(2, 5), (-1, 1)$

17) $(1, -5), (1, 0)$

18)



19)



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Mid-point Formula

$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

Find the coordinates of M , the midpoint of \overline{ST} , for $S(-6, 3)$ and $T(1, 0)$.

$$\begin{aligned} M &= \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right) \\ &= \left(\frac{-6 + 1}{2}, \frac{3 + 0}{2} \right) \\ &= \left(\frac{-5}{2}, \frac{3}{2} \right) \text{ or } M\left(-2\frac{1}{2}, 1\frac{1}{2}\right) \end{aligned}$$

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

20) $(-4, 6), (-3, 6)$

21) $(1, -1), (-6, 1)$

22) $(-2, -1), (3, 4)$

23) $(-1, 5), (5, 2)$

Given the midpoint and one endpoint of a line segment, find the other endpoint.

24) Endpoint: $(5, -5)$, midpoint: $(-3, -1)$

25) Endpoint: $(1, 3)$, midpoint: $(-2, 3)$

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Example 1. 33, for example, has no square factors. Its factors are $3 \cdot 11$, neither of which is a square number. Therefore, $\sqrt{33}$ is in its simplest form.

Example 2. Extracting the square root. 18 has the square factor 9.

$$18 = 9 \cdot 2.$$

Therefore, $\sqrt{18}$ is not in its simplest form. We have,

$$\sqrt{18} = \sqrt{9 \cdot 2}$$

We may now extract, or take out, the square root of 9:

$$\sqrt{18} = \sqrt{9 \cdot 2} = 3\sqrt{2}.$$

$\sqrt{18}$ is now simplified. The radicand no longer has any square factors.

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Simplify.

26) $\sqrt{8}$

A) $5\sqrt{3}$

B) $4\sqrt{2}$

C) $5\sqrt{5}$

D) $2\sqrt{2}$

27) $\sqrt{80}$

A) $4\sqrt{5}$

B) $5\sqrt{2}$

C) 10

D) 4

28) $\sqrt{27}$

A) $3\sqrt{5}$

B) $2\sqrt{5}$

C) $3\sqrt{2}$

D) $3\sqrt{3}$

29) $\sqrt{100}$

A) 10

B) $5\sqrt{2}$

C) $5\sqrt{3}$

D) $3\sqrt{2}$

30) $\sqrt{50}$

31) $\sqrt{125}$

32) $\sqrt{64}$

33) $\sqrt{32}$

Multiply each.

34) $(y - 5)^2$

35) $8x(-4x^2 - x - 11)$

36) $(m-1)(m-4)$

37) $(2q + 3)(5q + 2)$

Round each to the indicated place value.

38) 217.3456; nearest tenths

39) 217.3456; nearest hundredths

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40) 217.3456; nearest tens