

Mathematics Big 20
Grade 8: Problem 1

A

$$15 = 2y - 5$$

B

$$18 = 3y + 6$$

C

$$14 = 4y - 2$$

D

$$13 = 7y - 8$$

E

$$16 = 5y + 1$$

F

$$17 = 6y + 5$$

Mathematics Big 20

Grade 8: Problem 2

A

$$a^2 - 196 = 0$$

B

$$2x^2 - 98 = 0$$

C

$$3x^2 - 190 = 2$$

D

$$c^2 - 80 = 1$$

E

$$y^2 - 249 = 7$$

F

$$d^2 - 144 = 0$$

Mathematics Big 20

Grade 8: Problem 3

A

$$\begin{aligned} &(5x + 6y) + \\ &(2x + 8y) \end{aligned}$$

B

$$\begin{aligned} &(4x - 6y) - \\ &(9x + 8y) \end{aligned}$$

C

$$\begin{aligned} &(3x - 2y) - \\ &(7x + 4y) \end{aligned}$$

D

$$\begin{aligned} &(3x - 5y) + \\ &(7x - 2y) \end{aligned}$$

E

$$\begin{aligned} &(-2x + 4y) + \\ &(-12x - 5y) \end{aligned}$$

F

$$\begin{aligned} &(-5x + 6y) + \\ &(-x + -y) \end{aligned}$$

Mathematics Big 20

Grade 8: Problem 4

A

Write 54,800,000 in scientific notation.

B

Write 6,307,000 in scientific notation.

C

What is 5.48×10^7 in standard notation?

D

What is 6.3×10^5 in standard notation?

E

Write 4,107,000 in scientific notation.

F

What is 4.107×10^6 in standard notation?

Mathematics Big 20

Grade 8: Problem 5

A

On a dice, what is the probability of rolling a prime number?

B

On a dice, what is the probability of rolling an even number?

C

On a dice, what is the probability of rolling a composite number?

D

On a dice, what is the probability of rolling an odd number?

E

On a dice, what is the probability of rolling a zero?

F

On a dice, what is the probability of rolling an even prime number?

Mathematics Big 20

Grade 8: Problem 6

A

Write the equation for a line containing
(1, 6) and (3, -4).

B

Write the equation for a line containing
(1, -2) and (4, 1).

C

Write the equation for a line containing
(1, 2) and (4, -1).

D

Write the equation for a line containing
(1, -6) and (-4, 4).

E

Write the equation for a line containing
(2, 3) and (1, -2).

F

Write the equation for a line containing
(2, 3) and (-1, 2).

Mathematics Big 20

Grade 8: Problem 7

A

Find a solution for this system:

$$\begin{aligned}x + y &= 7 \\x + 2y &= 11\end{aligned}$$

B

Find a solution for this system:

$$\begin{aligned}4x + 3y &= 31 \\y &= 2x + 7\end{aligned}$$

C

Find a solution for this system:

$$\begin{aligned}2x + 2y &= 40 \\y &= 3x - 4\end{aligned}$$

D

Find a solution for this system:

$$\begin{aligned}2x + 3y &= 4 \\x + 2y &= 3\end{aligned}$$

E

Find a solution for this system:

$$\begin{aligned}x + 3y &= 2 \\x + 2y &= 4\end{aligned}$$

F

Find a solution for this system:

$$\begin{aligned}3x + y &= 7 \\2x - y &= 3\end{aligned}$$

Mathematics Big 20
Grade 8: Problem 8

A

$$-3g + 7 = 5g - 9$$

B

$$-21d + 15 = -5d + 7$$

C

$$2f + 13 = -6f - 3$$

D

$$-4d - 1 = -2d + 3$$

E

$$5x - 7 = -4x + 11$$

F

$$-10p + 1 = -2p - 3$$

Mathematics Big 20

Grade 8: Problem 9

A

$$\frac{9}{4x} - \frac{7}{5x}$$

B

$$\frac{3}{2y} + \frac{5}{3y}$$

C

$$\frac{1}{3x} + \frac{2}{6y}$$

D

$$\frac{3}{4x} - \frac{5}{6x}$$

E

$$\frac{1}{3x} - \frac{4}{9x}$$

F

$$\frac{1}{2x} - \frac{3}{8x}$$

Mathematics Big 20

Grade 8: Problem 10

A Write $\sqrt{192}$ in simplest form.

B Write $\sqrt{108}$ in simplest form.

C Write $\sqrt{32}$ in simplest form.

D Write $\sqrt{147}$ in simplest form.

E Write $\sqrt{448}$ in simplest form.

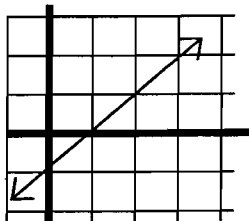
F Write $\sqrt{75}$ in simplest form.

Mathematics Big 20

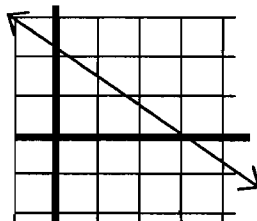
Grade 8: Problem 11

A

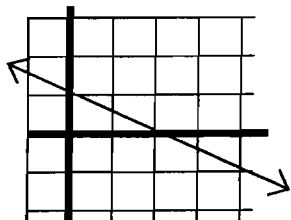
Write the equation for the graph of the line:

**B**

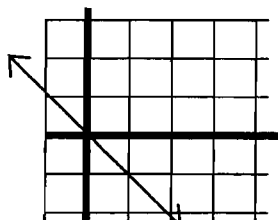
Write the equation for the graph of the line:

**C**

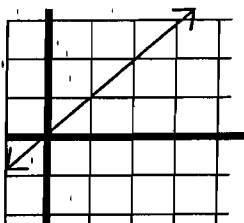
Write the equation for the graph of the line:

**D**

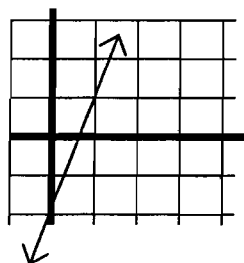
Write the equation for the graph of the line:

**E**

Write the equation for the graph of the line:

**F**

Write the equation for the graph of the line:



Mathematics Big 20

Grade 8: Problem 12

A

Graph: $2y - 6x < 4$

B

Graph: $y + 2x \geq 5$

C

Graph: $3y - x \geq 9$

D

Graph: $5y - 10x > 5$

E

Graph: $2x - 3y \leq -6$

F

Graph: $4y + 3x < -8$

Mathematics Big 20

Grade 8: Problem 13

A

Write $2y + 3x = 6$ in slope-intercept form.

B

Write $4x + 2y = 6$ in slope-intercept form.

C

Write $3y - x = 15$ in slope-intercept form.

D

Write $3y - 4x = 6$ in slope-intercept form.

E

Write $5x - y = -6$ in slope-intercept form.

F

Write $4y + 7x = 0$ in slope-intercept form.

Mathematics Big 20

Grade 8: Problem 14

A

Write $y=9 - 2x$
in standard form.

B

Write $3y = -8x + 2$
in standard form.

C

Write $y = -4x + 1$
in standard form.

D

Write $y = - 3x + 7$
in standard form.

E

Write $y = - 1/2x + 7$
in standard form.

F

Write $y=1/2x$
in standard form.

Mathematics Big 20

Grade 8: Problem 15

A

Write an equation:

Three less than a number, x ,
is equal to -5 .

B

Write an equation:

Four more than a number, x ,
is equal to 7 .

C

Write an equation:

Five less than a number, x ,
is equal to 5 .

D

Write an equation:

Seven less than twice a number, x ,
is equal to 2 .

E

Write an equation:

Four more than triple a number, x ,
is equal to -3 .

F

Write an equation:

Two less than double a number, x ,
is equal to 5 .

Mathematics Big 20

Grade 8: Problem 16

AGraph $y=2x+1$ **B**Graph $y=1/2x+2$ **C**Graph $y=1/3x - 1$ **D**Graph $y=3x - 2$ **E**Graph $y=x - 1$ **F**Graph $y=2x - 1$

Mathematics Big 20

Grade 8: Problem 17

A

Solve: $(-5xy)^2(xy)^{-3}$

B

Solve: $(-2xy)^{-2}(xy)^2$

C

Solve: $(4xy)^{-2}(2xy)^3$

D

Solve: $(xy)^{-2}(xy)^3$

E

Solve: $(-xy)^{-4}(2xy)^2$

F

Solve: $(3xy)^2(-2xy)^{-3}$

Mathematics Big 20

Grade 8: Problem 18

A

$$\frac{5}{3c} = \frac{2}{3}$$

B

$$\frac{4}{5f} = \frac{2}{6}$$

C

$$\frac{3}{4d} = \frac{2}{5}$$

D

$$\frac{2}{5c} = \frac{3}{6}$$

E

$$\frac{3}{5c} = \frac{2}{3}$$

F

$$\frac{3}{4f} = \frac{1}{3}$$

Mathematics Big 20

Grade 8: Problem 19

A

$$\frac{25x^2}{10x} \div \frac{5x}{10x}$$

B

$$\frac{21x^3}{36x} \div \frac{7x}{4x^2}$$

C

$$\frac{7x}{4x} \div \frac{x^2}{28x^2}$$

D

$$\frac{4x^2}{8x} \div \frac{x^3}{10x}$$

E

$$\frac{36x^2}{7x} \div \frac{6x}{21x}$$

F

$$\frac{12x^2}{13x} \div \frac{4x}{5x}$$

Mathematics Big 20

Grade 8: Problem 20

A

Solve and graph:

$$3x + 4 > 13$$

B

Solve and graph:

$$2x - 7 \leq 9$$

C

Solve and graph:

$$2x + 4 > 2$$

D

Solve and graph:

$$7x + 3 < 17$$

E

Solve and graph:

$$4x - 2 \geq 10$$

F

Solve and graph:

$$5x - 4 > 16$$