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MHS Entrance Exam
Grade 10

1. Reference: Level I Algebra 1 Chapter 2 Section 3

What is the value of $\frac{1}{3}(10a + 2b)$ if $a = 6$ and $b = 3$?

2. Reference: Level I Algebra 1 Chapter 3 Section 3

Which of the following is true?

Select all that apply and enter their labels in the same order as they appear (ascending order). Enter the labels without any spaces or commas.

1. If $|x| = 11$, then $x = 11$ or $x = -11$.
2. If $|x| = 11$, then $x = 11$ only.
3. If $|x| = 11$, then $x = -11$ only.
4. If $|x| = 0$, then x must be equal to 0.
5. If $|x| = -11$, then x does not exist.

3. Reference: Level I Algebra 1 Chapter 4 Section 3
What integer is equal to $5(-8)$?

4. Reference: Level I Algebra 1 Chapter 4 Section 3
What integer can replace the empty box in $-4(2n) - 5(-10n) = \boxed{}\,n$?

5. Reference: Level I Algebra 1 Chapter 4 Section 3
What integer can replace the empty box in $-4(-2 - 3x) = \boxed{}\,x + 8$?

6. Reference: Level I Algebra 1 Chapter 5 Section 3

What is the value of m if $8m + 1 = 49$?

7. Reference: Level I Algebra 1 Chapter 5 Section 3

What is the value of x if $4x + 3 = 5x - 12$?

8. Reference: Level I Algebra 1 Chapter 7 Section 5

What whole number must replace the box in $(6d + 8)^2 = 36d^2 + \square\, d + 64$?

9. Reference: Level I Algebra 1 Chapter 8 Section 3

Which of the following are factors of $36x^2 - 81y^2$?

Select all that apply and enter their labels in the same order as they appear (ascending order). Enter the labels without any spaces or commas.

1. $(6x - 9y)^2$

2. $6x + 9y$

3. $36x - 81y$

4. $36x + 9y$

5. $6x - 9y$

10. Reference: Mathematical Studies I Chapter 4 Section 3

Which of the following are factors of $x^2 + 19x + 84$?

Select all that apply and enter their labels in the same order as they appear (ascending order). Enter the labels without any spaces or commas.

1. $x + 42$

2. $x + 12$

3. $x + 2$

4. $x + 21$

5. $x + 7$

6. $x + 4$

11. Reference: Mathematical Studies I Chapter 4 Section 3

Which of the following are factors of $81x^2 - 1$?

Select all that apply and enter their labels in the same order as they appear (ascending order). Enter the labels without any spaces or commas.

1. $9x + 1$

2. $9x - 1$

3. $81x + 1$

4. $18x + 1$

5. $81x - 1$

6. $18x - 1$

12. Reference: Mathematical Studies I Chapter 4 Section 3

Which of the following are factors of $x^2 + 15x - 100$?

Select all that apply and enter their labels in the same order as they appear (ascending order). Enter the labels without any spaces or commas.

1. $x - 20$

2. $x + 5$

3. $x + 20$

4. $x - 5$

5. $x + 4$

6. $x - 25$

13. Reference: Mathematical Studies I Chapter 4 Section 3

On a piece of paper, write the expression $x^2 - 11x - 80$ in the form $(x + r)(x - s)$, $r > 0$ and $s > 0$. Give the value of s.
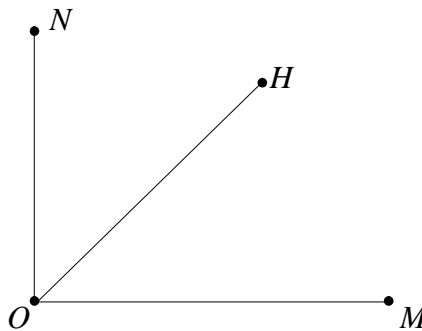
14. Reference: Level I Algebra 1 Chapter 7 Section 6

What whole number must replace the box in $\dfrac{y^{36}}{y^8} = y^{\square} y^{14}$?

15. Reference: Level J Geometry 1 Chapter 4 Section 2

$m\angle 1 = (4x + 5)°$ and $m\angle 2 = (5x + 13)°$. Find x if $\angle 1$ and $\angle 2$ are complementary.

16. Reference: Level J Geometry 1 Chapter 4 Section 3

Refer to the figure below to answer the question.

In the above figure, $m\angle MON = 90°$ and $m\angle HOM = (8x + 21)°$. Find x if $\overline{OH}$ bisects $\angle MON$.

17. Reference: Level I Algebra 1 Chapter 7 Section 2

What whole number must replace the box in $(5y + 6) + (4y - 7) = \square\, y - 1$?

18. Reference: Level I Algebra 1 Chapter 7 Section 2

What whole number must replace the box in $(-7a - 13) - (4a + 23) = -11a - \square$?

19. Reference: Level I Algebra 1 Chapter 7 Section 3

What whole number must replace the box in $x^9 x^{12} = x^{\square} x^6$?

20. Reference: Level I Algebra 1 Chapter 7 Section 3

What whole number must replace the box in $\left(g^8\right)^5 = \left(g^\square\right)^4$?

21. Reference: Level I Algebra 1 Chapter 7 Section 4

What whole number must replace the box in $\left(4x^2 + 3y\right)\left(10x^2 - 7y\right) = 40x^4 + \square\, x^2 y - 21y^2$?

22. Reference: Level I Algebra 1 Chapter 7 Section 6

What is the value of $\dfrac{90x^{10}}{15x^8}$ when $x = -4$?

Simplify the expression first to make the calculation easier.

23. Reference: Level J Algebra 2 Chapter 3 Section 4

Which of the following are factors of $x^2 - 17x + 60$?

Select all that apply and enter their labels in the same order as they appear (ascending order). Enter the labels without any spaces or commas.
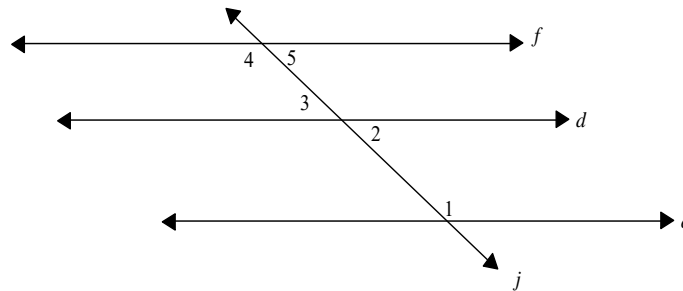
1. $x - 4$

2. $x - 15$

3. $x + 5$

4. $x - 12$

5. $x - 5$

6. $x + 12$

24. Reference: Level J Geometry 1 Chapter 8 Section 3

Refer to the figure below to answer the question.

Which of the following must be true?
Select all that apply and enter their labels in the same order as they appear (ascending order).
Enter the labels without any spaces or commas.

1. $\angle 1$ and $\angle 2$ are alternate interior angles.

2. $\angle 3$ and $\angle 5$ are alternate interior angles.

3. $\angle 4$ and $\angle 5$ are alternate interior angles.

4. $\angle 2$ and $\angle 3$ are corresponding angles.

5. $\angle 1$ and $\angle 5$ are co-interior angles.

25. Reference: Level I Algebra 1 Chapter 4 Section 3

What integer can replace the empty box in $-5(9-4w)+8w=\boxed{}w-45$?

26. Reference: Level I Algebra 1 Chapter 4 Section 4

What integer is equal to $-60 \div (-15)$?

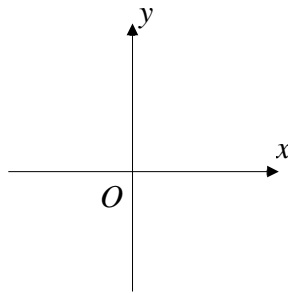**27. Reference:** Level I Algebra 1 Chapter 5 Section 3

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What is the value of x if $\dfrac{2}{5}x = 14$?

28. Reference: Level I Algebra 1 Chapter 5 Section 3

What is the value of x if $1.8x - 9.8 = 4.6$?

29. Reference: Level J Algebra 2 Chapter 2 Section 4

Consider the graph of the line whose equation is $-x = -24$ when drawn on a grid like the one below.
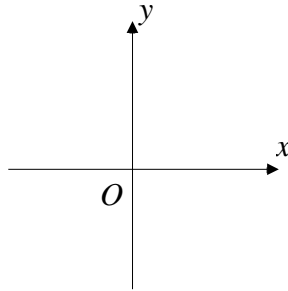

Which of the following is true about this graph?

Select all that apply and enter their labels in the same order as they appear (ascending order). Enter the labels without any spaces or commas.

1. It is parallel to the y-axis.

2. It cuts the x-axis at $x = -24$.

3. It cuts the x-axis at $x = 24$.

4. It cuts the y-axis at $y = -24$.

5. It is a horizontal line.

6. It is a vertical line.

30. Reference: Level J Algebra 2 Chapter 2 Section 4

Consider the graph of the line whose equation is $-3y = 24$ when drawn on a grid like the one below.

Which of the following is true about this graph?

Select all that apply and enter their labels in the same order as they appear (ascending order).
Enter the labels without any spaces or commas.

1. It cuts the *y*-axis at $y = 8$.

2. It cuts the *x*-axis at $x = 8$.

3. It is parallel to the *x*-axis.

4. It is a vertical line.

5. It is a horizontal line.

6. It cuts the *y*-axis at $y = -8$.

31. Reference: Level J Algebra 2 Chapter 2 Section 5

The slope of the line passing through points $A(1, -5)$ and $D(4, 37)$ is k. What is the value of k?
If the slope is undefined, enter 999 for your answer.

32. Reference: Level J Algebra 2 Chapter 2 Section 5

The slope of the line whose equation is $3y + 54 = 0$ is k. What is the value of k?
If the slope is undefined, enter 999 for your answer.

33. Reference: Level J Algebra 2 Chapter 2 Section 6

Consider the line with equation $5x - \dfrac{y}{2} = \dfrac{1}{3}$.

Which of the following is true about this line?

Select all that apply and enter their labels in the same order as they appear (ascending order).
Enter the labels without any spaces or commas.

1. Its *y*-intercept is 2/3.

2. Its equation in slope y-intercept form is $y = 10x - \dfrac{2}{3}$.

3. Its y-intercept is –2/3.

4. Its equation in slope y-intercept form is $y = 10x + \dfrac{2}{3}$.

5. Its slope is –10.

6. Its slope is 10.

34. Reference: Level I Algebra 1 Chapter 4 Section 1

What integer is equal to $35 + (-75)$?

35. Reference: Level I Algebra 1 Chapter 4 Section 1

What integer is equal to $-2 + (-17)$?

36. Reference: Level I Algebra 1 Chapter 4 Section 1

What integer can replace the empty box in $(-x + 5) + (-2x) = \boxed{}\, x + 5$?

37. Reference: Level I Algebra 1 Chapter 4 Section 2

What integer can replace the empty box in $-(-63 + 10f) = \boxed{}\, f + 63$?

38. Reference: Level I Algebra 1 Chapter 5 Section 3

If $x = \dfrac{\boxed{}}{30}$ is the solution to $x + \dfrac{1}{6} = \dfrac{3}{5}$, then what whole number must replace the box?

39. Reference: Level I Algebra 1 Chapter 5 Section 3

If $x = \dfrac{\boxed{}}{5}$ is the solution to $x + \dfrac{2}{5} = 2$, then what whole number must replace the box?

Sample Questions Exam Answer Key

1. Reference: Level I Algebra 1 Chapter 2 Section 3

What is the value of $\dfrac{1}{3}\left(10a + 2b\right)$ if $a = 6$ and $b = 3$?

Sample question answer:
[Section 1]
$$\frac{1}{3}\left(10a + 2b\right) = \frac{1}{3}\left(10(6) + 2(3)\right) = \frac{1}{3}\left(60 + 6\right) = \frac{1}{3}\left(66\right) = 22$$

Answer: 22

2. Reference: Level I Algebra 1 Chapter 3 Section 3

Which of the following is true?

Select all that apply and enter their labels in the same order as they appear (ascending order). Enter the labels without any spaces or commas.

1. If $|x| = 11$, then $x = 11$ or $x = -11$.
2. If $|x| = 11$, then $x = 11$ only.
3. If $|x| = 11$, then $x = -11$ only.
4. If $|x| = 0$, then x must be equal to 0.
5. If $|x| = -11$, then x does not exist.

Sample question answer:
[Section 1]
By definition, statements 1, 4, and 5 are true.

Answer: 145

3. Reference: Level I Algebra 1 Chapter 4 Section 3
What integer is equal to $5(-8)$?

Sample question answer:
[Section 1]
$5(-8) = -(5 \times 8) = -40$
Answer: -40

4. Reference: Level I Algebra 1 Chapter 4 Section 3
What integer can replace the empty box in $-4(2n) - 5(-10n) = \square n$?

Sample question answer:
[Section 1]
$-4(2n) - 5(-10n) = -8n + 50n = 42n$
Answer: 42

5. Reference: Level I Algebra 1 Chapter 4 Section 3
What integer can replace the empty box in $-4(-2 - 3x) = \square x + 8$?

Sample question answer:
[Section 1]
$-4(-2 - 3x) = 8 + 12x = 12x + 8$
Answer: 12

6. Reference: Level I Algebra 1 Chapter 5 Section 3

What is the value of m if $8m + 1 = 49$?

Sample question answer:
[Section 1]
$8m + 1 = 49 \Rightarrow 8m = 48 \Rightarrow m = 6$
Answer: 6

7. Reference: Level I Algebra 1 Chapter 5 Section 3

What is the value of x if $4x + 3 = 5x - 12$?

Sample question answer:
[Section 1]
$4x + 3 = 5x - 12 \Rightarrow 5x - 4x = 3 + 12 \Rightarrow x = 15$
Answer: 15

8. Reference: Level I Algebra 1 Chapter 7 Section 5
What whole number must replace the box in $\left(6d + 8\right)^2 = 36d^2 + \square\, d + 64$?

Sample question answer:
[Section 1]
$(6d + 8)^2 = 36d^2 + 96d + 64$
Answer: 96

9. Reference: Level I Algebra 1 Chapter 8 Section 3
Which of the following are factors of $36x^2 - 81y^2$?

Select all that apply and enter their labels in the same order as they appear (ascending order).
Enter the labels without any spaces or commas.

1. $(6x - 9y)^2$

2. $6x + 9y$

3. $36x - 81y$

4. $36x + 9y$

5. $6x - 9y$

Sample question answer:
[Section 1]
$36x^2 - 81y^2 = (6x - 9y)(6x + 9y)$
Answer: 25

10. Reference: Mathematical Studies I Chapter 4 Section 3

Which of the following are factors of $x^2 + 19x + 84$?

Select all that apply and enter their labels in the same order as they appear (ascending order).
Enter the labels without any spaces or commas.

1. $x + 42$

2. $x + 12$

3. $x + 2$

4. $x + 21$

5. $x + 7$

6. $x + 4$

Sample question answer:
[Section 1]
$x^2 + 19x + 84 = (x + m)(x + n)$, where $m + n = 19$ and $mn = 84$.

7 and 12 are two factors of 84 and 7 + 12 = 19.
Therefore, $x^2 + 19x + 84 = (x + 12)(x + 7)$

Answer: 25

11. Reference: Mathematical Studies I Chapter 4 Section 3

Which of the following are factors of $81x^2 - 1$?

Select all that apply and enter their labels in the same order as they appear (ascending order).
Enter the labels without any spaces or commas.

1. $9x + 1$

2. $9x - 1$

3. $81x + 1$

4. $18x + 1$

5. $81x - 1$

6. $18x - 1$

Sample question answer:
[Section 1]
$81x^2 - 1 = (9x - 1)(9x + 1)$

Answer: 12

12. Reference: Mathematical Studies I Chapter 4 Section 3

Which of the following are factors of $x^2 + 15x - 100$?

Select all that apply and enter their labels in the same order as they appear (ascending order).
Enter the labels without any spaces or commas.

1. $x - 20$

2. $x + 5$

3. $x + 20$

4. $x - 5$

5. $x + 4$

6. $x - 25$

Sample question answer:
[Section 1]
$x^2 + 15x - 100 = (x + m)(x + n)$, **where** $m + n = 15$ **and** $mn = -100$. m **and** n **have opposite signs**

as their product is negative.

The product of 20 and −5 is −100 and 20 + (−5) = 15.
Therefore, $x^2 + 15x - 100 = (x + 20)(x - 5)$

Answer: 34

13. Reference: Mathematical Studies I Chapter 4 Section 3

On a piece of paper, write the expression $x^2 - 11x - 80$ in the form $(x + r)(x - s)$, $r > 0$ and $s > 0$.
Give the value of s.

Sample question answer:
[Section 1]
$x^2 - 11x - 80 = (x + 5)(x - 16)$, **therefore** $s = 16$.

Answer: 16

14. Reference: Level I Algebra 1 Chapter 7 Section 6

What whole number must replace the box in $\dfrac{y^{36}}{y^8} = y^{\square} y^{14}$?

Sample question answer:
[Section 1]
$\dfrac{y^{36}}{y^8} = y^{14} y^{14}$

Answer: 14

15. Reference: Level J Geometry 1 Chapter 4 Section 2

m∠1 = (4x + 5)° and m∠2 = (5x + 13)°. Find x if ∠1 and ∠2 are complementary.

Sample question answer:
[Section 1]
If ∠1 and ∠2 are complementary, then m∠1 + m∠2 = 90°
(4x + 5)° + (5x + 13)° = 90°
9x = 72
x = 8.

16. Reference: Level J Geometry 1 Chapter 4 Section 3

Refer to the figure below to answer the question.
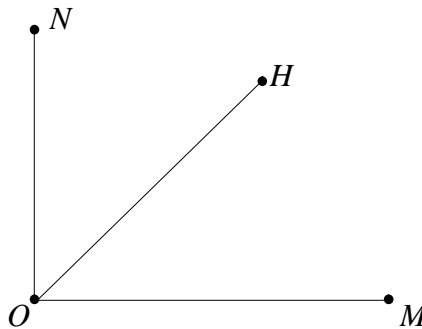
In the above figure, m∠*MON* = 90° and m∠*HOM* = (8x + 21)°. Find x if $\overline{OH}$ bisects ∠*MON*.

Sample question answer:
[Section 1]
$\overline{OH}$ **bisects ∠*MON*, then m∠*HOM* = $\frac{1}{2}$ m∠*MON* = 45°.**

8x + 21 = 45
8x = 24
x = 3

17. Reference: Level I Algebra 1 Chapter 7 Section 2

What whole number must replace the box in $(5y+6)+(4y-7)=\boxed{}y-1?$

Sample question answer:
[Section 1]
(5y + 6) + (4y – 7) = 9y – 1
Answer: 9

18. Reference: Level I Algebra 1 Chapter 7 Section 2

What whole number must replace the box in $(-7a-13)-(4a+23)=-11a-\Box$?

Sample question answer:
[Section 1]
(–7a – 13) – (4a + 23) = –11a – 36
Answer: 36

19. Reference: Level I Algebra 1 Chapter 7 Section 3

What whole number must replace the box in $x^9 x^{12} = x^{\Box} x^6$?

Sample question answer:
[Section 1]
$x^9 x^{12} = x^{15} x^6$
Answer: 15

20. Reference: Level I Algebra 1 Chapter 7 Section 3

What whole number must replace the box in $\left(g^8\right)^5 = \left(g^{\Box}\right)^4$?

Sample question answer:
[Section 1]
$\left(g^8\right)^5 = \left(g^{10}\right)^4$

Answer: 10

21. Reference: Level I Algebra 1 Chapter 7 Section 4

What whole number must replace the box in $\left(4x^2+3y\right)\left(10x^2-7y\right)=40x^4+\Box\, x^2 y-21y^2$?

Sample question answer:
[Section 1]

$(4x^2 + 3y)(10x^2 - 7y) = 40x^4 - 28x^2y + 30x^2y - 21y^2 = 40x^4 + 2x^2y - 21y^2$
Answer: 2

22. Reference: Level I Algebra 1 Chapter 7 Section 6

What is the value of $\dfrac{90x^{10}}{15x^8}$ when $x = -4$?

Simplify the expression first to make the calculation easier.

Sample question answer:
[Section 1]
$$\frac{90x^{10}}{15x^8} = 6x^2$$

$6 \times (-4)^2 = 6 \times 16 = 96$
Answer: 96

23. Reference: Level J Algebra 2 Chapter 3 Section 4

Which of the following are factors of $x^2 - 17x + 60$?

Select all that apply and enter their labels in the same order as they appear (ascending order). Enter the labels without any spaces or commas.

1. $x - 4$

2. $x - 15$

3. $x + 5$

4. $x - 12$

5. $x - 5$
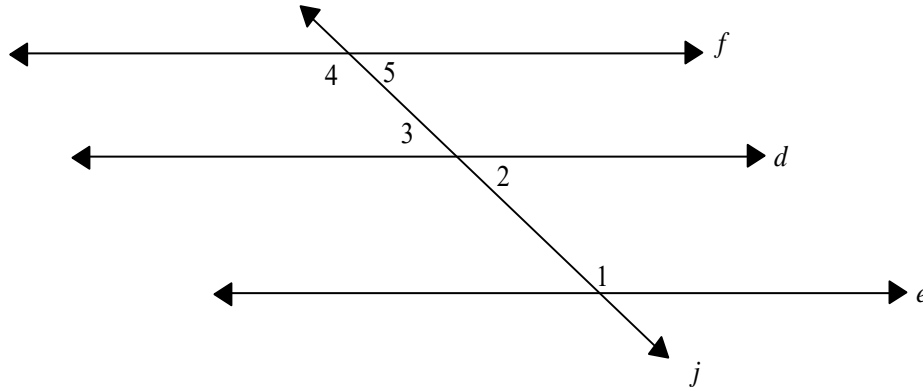
6. $x + 12$

Sample question answer:
[Section 1]
$x^2 - 17x + 60 = (x - m)(x - n)$, $m > 0$ and $n > 0$

5 and 12 are two factors of 60 and $5 + 12 = 17$, so $x^2 - 17x + 60 = (x - 5)(x - 12)$

Answer: 45

24. Reference: Level J Geometry 1 Chapter 8 Section 3

Refer to the figure below to answer the question.

Which of the following must be true?
Select all that apply and enter their labels in the same order as they appear (ascending order).
Enter the labels without any spaces or commas.

1. $\angle 1$ and $\angle 2$ are alternate interior angles.

2. $\angle 3$ and $\angle 5$ are alternate interior angles.

3. $\angle 4$ and $\angle 5$ are alternate interior angles.

4. $\angle 2$ and $\angle 3$ are corresponding angles.

5. $\angle 1$ and $\angle 5$ are co-interior angles.

Sample question answer:
[Section 1]
$\angle 1$ and $\angle 2$ are co-interior angles.

$\angle 4$ and $\angle 5$ form a linear pair.

$\angle 2$ and $\angle 3$ are vertical angles.

Answer: 25

25. Reference: Level I Algebra 1 Chapter 4 Section 3

What integer can replace the empty box in $-5(9 - 4w) + 8w = \boxed{}\, w - 45$?

Sample question answer:
[Section 1]
$-5(9 - 4w) + 8w = -45 + 20w + 8w = -45 + 28w = 28w - 45$
Answer: 28

26. Reference: Level I Algebra 1 Chapter 4 Section 4

What integer is equal to $-60 \div (-15)$?

Sample question answer:
[Section 1]
$$-60 \div (-15) = 4$$
Answer: 4

27. Reference: Level I Algebra 1 Chapter 5 Section 3

What is the value of x if $\dfrac{2}{5}x = 14$?

Sample question answer:
[Section 1]
$$\frac{2}{5}x = 14 \Rightarrow x = \frac{14 \times 5}{2} \Rightarrow x = 35$$

Answer: 35

28. Reference: Level I Algebra 1 Chapter 5 Section 3

What is the value of x if $1.8x - 9.8 = 4.6$?
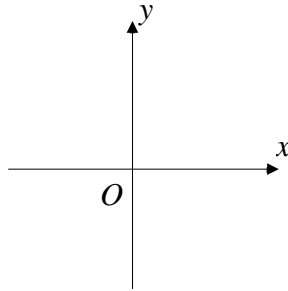
Sample question answer:
[Section 1]
$$1.8x - 9.8 = 4.6 \Rightarrow 1.8x = 14.4 \Rightarrow x = 8$$
Answer: 8

29. Reference: Level J Algebra 2 Chapter 2 Section 4

Consider the graph of the line whose equation is $-x = -24$ when drawn on a grid like the one below.

Which of the following is true about this graph?

Select all that apply and enter their labels in the same order as they appear (ascending order). Enter the labels without any spaces or commas.

1. It is parallel to the *y*-axis.

2. It cuts the *x*-axis at $x = -24$.

3. It cuts the *x*-axis at $x = 24$.

4. It cuts the *y*-axis at $y = -24$.

5. It is a horizontal line.

6. It is a vertical line.
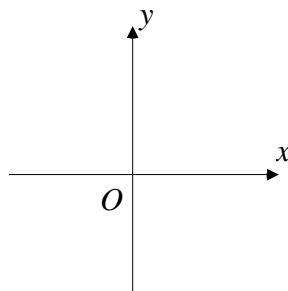
Sample question answer:
[Section 1]
$-x = -24$ **is vertical line (6 applies).** $-x = -24 \Rightarrow x = 24$ **so it intersects the *x*-axis at** $x = 24$ **(3 applies). A vertical line is parallel to the *y*-axis (1 applies).**
Answer: 136

30. Reference: Level J Algebra 2 Chapter 2 Section 4

Consider the graph of the line whose equation is $-3y = 24$ when drawn on a grid like the one below.

Which of the following is true about this graph?

Select all that apply and enter their labels in the same order as they appear (ascending order). Enter the labels without any spaces or commas.

1. It cuts the *y*-axis at $y = 8$.

2. It cuts the *x*-axis at $x = 8$.

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3. It is parallel to the *x*-axis.

4. It is a vertical line.

5. It is a horizontal line.

6. It cuts the *y*-axis at $y = -8$.

Sample question answer:
[Section 1]
$-3y = 24$ is a horizontal line (5 applies). $-3y = 24 \Rightarrow y = -8$, it cuts the *y*-axis at $y = -8$ (6 applies). A horizontal is parallel to the *x*-axis (3 applies).
Answer: 356

31. Reference: Level J Algebra 2 Chapter 2 Section 5

The slope of the line passing through points $A(1, -5)$ and $D(4, 37)$ is *k*. What is the value of *k*?
If the slope is undefined, enter 999 for your answer.

Sample question answer:
[Section 1]
Vertical change $= y_D - y_A = 37 - (-5) = 42$

Horizontal change $= x_D - x_A = 4 - 1 = 3$

The slope is: $\dfrac{y_2 - y_1}{x_2 - x_1} = \dfrac{42}{3} = 14$

Answer: 14

32. Reference: Level J Algebra 2 Chapter 2 Section 5

The slope of the line whose equation is $3y + 54 = 0$ is *k*. What is the value of *k*?
If the slope is undefined, enter 999 for your answer.

Sample question answer:
[Section 1]
$3y + 54 = 0 \Rightarrow 3y = -54 \Rightarrow y = -18$. The line is horizontal, hence its slope is 0.
Answer: 0

33. Reference: Level J Algebra 2 Chapter 2 Section 6

Consider the line with equation $5x - \dfrac{y}{2} = \dfrac{1}{3}$.

Which of the following is true about this line?

Select all that apply and enter their labels in the same order as they appear (ascending order). Enter the labels without any spaces or commas.

1. Its *y*-intercept is 2/3.

2. Its equation in slope *y*-intercept form is $y = 10x - \dfrac{2}{3}$.

3. Its *y*-intercept is –2/3.

4. Its equation in slope *y*-intercept form is $y = 10x + \dfrac{2}{3}$.

5. Its slope is –10.

6. Its slope is 10.

Sample question answer:
[Section 1]
$$5x - \frac{y}{2} = \frac{1}{3} \Rightarrow \frac{y}{2} = 5x - \frac{1}{3} \Rightarrow y = 10x - \frac{2}{3} \text{ (2 applies).}$$

If $x = 0$, $y = -\dfrac{2}{3}$, **so the *y*-intercept is** $-\dfrac{2}{3}$ **(3 applies).**

The slope of this line is 10 (6 applies).
Answer: 236

34. Reference: Level I Algebra 1 Chapter 4 Section 1

What integer is equal to 35 + (–75)?

Sample question answer:
[Section 1]
35 + (–75) = 35 – 75 = –40
Answer: –40

35. Reference: Level I Algebra 1 Chapter 4 Section 1

What integer is equal to –2 + (–17)?

Sample question answer:
[Section 1]

$-2 + (-17) = -2 - 17 = -(2 + 17) = -19$
Answer: –19

36. Reference: Level I Algebra 1 Chapter 4 Section 1

What integer can replace the empty box in $(-x+5)+(-2x) = \boxed{}x+5$?

Sample question answer:
[Section 1]
(–x + 5) + (–2x) = –x + 5 – 2x = –(x + 2x) + 5 = –3x + 5
Answer: –3

37. Reference: Level I Algebra 1 Chapter 4 Section 2

What integer can replace the empty box in $-(-63+10f) = \boxed{}f+63$?

Sample question answer:
[Section 1]
–(–63 + 10f) = +63 – 10f = –10f + 63
Answer: –10

38. Reference: Level I Algebra 1 Chapter 5 Section 3

If $x = \dfrac{\boxed{}}{30}$ is the solution to $x+\dfrac{1}{6}=\dfrac{3}{5}$, then what whole number must replace the box?

Sample question answer:
[Section 1]

$$x+\frac{1}{6}=\frac{3}{5}$$

$$x=\frac{3}{5}-\frac{1}{6}=\frac{18-5}{30}=\frac{13}{30}$$

39. Reference: Level I Algebra 1 Chapter 5 Section 3

If $x = \dfrac{\Box}{5}$ is the solution to $x + \dfrac{2}{5} = 2$, then what whole number must replace the box?

Sample question answer:
[Section 1]

$$x + \frac{2}{5} = 2$$

$$x = 2 - \frac{2}{5} = \frac{10-2}{5} = \frac{8}{5}$$

Answer: 8