

Castle Score

1	21	41
2	22	42
3	23	43
4	24	44
5	25	45
6	26	46
7	27	47
8	28	48
9	29	49
10	30	50
11	31	51
12	32	52
13	33	53
14	34	54
15	35	55
16	36	56
17	37	57
18	38	58
19	39	59
20	40	60

Algebra L1

MAKEorBREAK™

Got the answer?
Be the first to start
with your group.

Got it?
Make a castle,
by other group's.

The group with the most
castles wins. Enjoy!

**Mathematics SAMPLE
Level 1 Algebra**

Score

Answer

Question 1:
Expand and simplify:
 $(x + 3)(x + 8)$

Answer:
 $x^2 + 11x + 24$

MAKEorBREAK?

Score

Answer

Question 2:
Expand and simplify:
 $(x + 7)(x - 4)$

Answer:
 $x^2 + 3x - 28$

MAKEorBREAK?

Score

Answer

Question 3:
Expand and simplify:
 $(x - 9)(x + 5)$

Answer:
 $x^2 - 4x - 45$

MAKEorBREAK?

Score

Answer

Question 4:
Expand and simplify:
 $(x - 4)(x - 6)$

Answer:
 $x^2 - 10x + 24$

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Score

Answer

Question 5:
Which of the following expansions
is correct for: $(x+11)(x-6)$

a. $x^2 + 17x - 66$
b. $x^2 + 5x - 66$
c. $x^2 - 5x + 5$
d. $x^2 - 17x - 66$
e. $x^2 + 5x + 17$

Answer:
B

MAKEorBREAK?

Score

Question 6:

Which of the following expansions is correct for: $(x-8)(x-3)$

- a. $x^2 - 11x - 24$
- b. $x^2 - 11x - 11$
- c. $x^2 - 5x + 11$
- d. $x^2 - 11x + 24$
- e. $x^2 + 5x + 24$

Answer:

D

Answer

MAKEorBREAK?

Score

Question 7:

Which of the following expansions is correct for: $(x+7)(x+6)$

- a. $x^2 + 13x + 42$
- b. $x^2 - 13x + 42$
- c. $x^2 + 13x + 13$
- d. $x^2 - 13x + 13$
- e. $x^2 + x + 42$

Answer:

A

Answer

MAKEorBREAK?

Score

Question 8:

Which of the following expansions is correct for: $(x-12)(x+2)$

- a. $x^2 + 14x - 24$
- b. $x^2 - 14x - 24$
- c. $x^2 + 10x - 24$
- d. $x^2 - 10x - 24$
- e. $x^2 - 10x - 10$

Answer:

D

Answer

MAKEorBREAK?

Score

Question 9:

Solve this equation:

$$5(t - 4) = 15$$

Answer:

$$t = 7$$

Answer

MAKEorBREAK?

Score

Question 10:

Solve this equation:

$$7(m + 8) = 25$$

Answer:

$$m = -4\frac{3}{7} \text{ or } m = -\frac{31}{7}$$

Answer

MAKEorBREAK?

Score

Question 11:

Solve this equation:

$$6(s - 11) = 8$$

Answer:

$$s = 12\frac{1}{3} \text{ or } s = \frac{37}{3}$$

Answer

MAKEorBREAK?

Score

Answer

Question 12:

Solve this equation:

$$3(p + 4) = 5$$

Answer:

$$p = -2^{1/3} \text{ or } s = -7/3$$

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Score

Answer

Question 13:

Which of the following is the correct solution for: $6(w - 7) = 3$

- a. $w = 25$
- b. $w = -6^{1/2}$
- c. $w = 11$
- d. $w = 7^{1/2}$
- e. $w = 4$

Answer:

D

MAKEorBREAK?

Score

Answer

Question 14:

Which of the following is the correct solution for: $5(k + 6) = 12$

- a. $k = 13$
- b. $k = 54$
- c. $k = -18/5$
- d. $k = -3.5$
- e. $k = 66$

Answer:

C

MAKEorBREAK?

Score

Answer

Question 15:

Which of the following is the correct solution for: $^{-1/8}(h + 3) = -2$

- a. $h = 13$
- b. $h = 19$
- c. $h = -19$
- d. $h = -13$
- e. $h = 9$

Answer:

A

MAKEorBREAK?

Score

Answer

Question 16:

Which of the following is the correct solution for: $-3(d - 7) = 8$

- a. $d = 12$
- b. $d = -17$
- c. $d = 4^{1/3}$
- d. $d = 31$
- e. $d = 9^{2/3}$

Answer:

C

MAKEorBREAK?

Score

Answer

Question 17:

Solve this equation:

$$6x(x - 5) = 0$$

Answer:

$$x = 0 \text{ and } x = 5$$

MAKEorBREAK?

Score

Answer

Question 18:

Solve this equation:

$$4x(x + 3) = 0$$

Answer:

$$x = 0 \text{ and } x = -3$$

MAKEorBREAK?

Score

Answer

Question 19:

Solve this equation:

$$-5x(x + 2) = 0$$

Answer:

$$x = 0 \text{ and } x = -2$$

MAKEorBREAK?

Score

Answer

Question 20:

Solve this equation:

$$8x(x - 9) = 0$$

Answer:

$$x = 0 \text{ and } x = 9$$

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Score

Answer

Question 21:

Which of the following is the correct solution for: $7x(x - 9) = 0$

- a. $x = 7, x = 9$
- b. $x = 7, x = -9$
- c. $x = 0, x = 9$
- d. $x = 0, x = -9$
- e. $x = 9, x = 63$

Answer:

C

MAKEorBREAK?

Score

Answer

Question 22:

Which of the following is the correct solution for: $-8x(x + 3) = 0$

- a. $x = -8, x = -3$
- b. $x = 0, x = -3$
- c. $x = 8, x = 3$
- d. $x = 8, x = -3$
- e. $x = 0, x = 3$

Answer:

B

MAKEorBREAK?

Score

Answer

Question 23:

Which of the following is the correct solution for: $4x(x + 7) = 0$

- a. $x = 0, x = -7$
- b. $x = -4, x = 7$
- c. $x = 4, x = -7$
- d. $x = 0, x = 7$
- e. $x = -4, x = -7$

Answer:

A

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Score

Question 24:

Which of the following is the correct solution for: $-6x(x - 5) = 0$

- a. $x = 0, x = -5$
- b. $x = -6, x = -5$
- c. $x = -6, x = 5$
- d. $x = 0, x = 5$
- e. $x = 6, x = 5$

Answer:

D

Answer

MAKEorBREAK?

Score

Question 25:

Expand and simplify:

$$6(x - 5) - 2(x + 1)$$

Answer:

$$4x - 32$$

Answer

MAKEorBREAK?

Score

Question 26:

Expand and simplify:

$$7(x - 2) - 5(x + 3)$$

Answer:

$$2x - 29$$

Answer

MAKEorBREAK?

Score

Question 27:

Expand and simplify:

$$2(x - 5) - 3(x + 4)$$

Answer:

$$-x - 22$$

Answer

MAKEorBREAK?

Score

Question 28:

Expand and simplify:

$$3(x - 7) - 5(x + 3)$$

Answer:

$$-2x - 36$$

Answer

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Score

Question 29:

Which of the following is the correct expansion of: $4(x + 2) - 3(x + 1)$

- a. $x + 11$
- b. $x + 5$
- c. $7x + 11$
- d. $7x + 5$
- e. $x + 1$

Answer:

B

Answer

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Score

Question 30:

Which of the following is the correct expansion of: $6(x - 5) + 2(x + 1)$

- a. $8x + 32$
- b. $12x + 28$
- c. $8x - 28$
- d. $4x - 28$
- e. $4x + 32$

Answer:

C

Answer

MAKEorBREAK?

Score

Question 31:

Which of the following is the correct expansion of: $7(x + 3) - 4(x + 2)$

- a. $3x + 23$
- b. $3x + 29$
- c. $3x + 2$
- d. $3x + 13$
- e. $3x - 13$

Answer:

D

Answer

MAKEorBREAK?

Score

Question 32:

Which of the following is the correct expansion of: $5(x - 8) + 3(x - 2)$

- a. $8x - 10$
- b. $8x - 46$
- c. $2x - 42$
- d. $2x - 46$
- e. $8x + 10$

Answer:

B

Answer

MAKEorBREAK?

Score

Question 33:

Jim decided to save some money to buy a new bicycle. He already had some money in his bank account and then added \$20 each week. After 6 weeks Jim had \$185 in his bank account. Write an expression for the total amount of money, M , that Jim has in his bank account after n weeks.

Answer:

$M = 20n + 65$

Answer

MAKEorBREAK?

Score

Question 34:

Mary had been growing flowers and noticed that each day there were three more flowers than the previous day. On the 5th day that she noticed this there were 23 flowers.

Write an expression for the total number of flowers, F , that Mary noticed bloom after n days.

Answer:

$F = 3n + 8$

Answer

MAKEorBREAK?

Score

Question 35:

Charlie has a bag of lollies and is trying to make them last as long as possible. He eats 3 lollies each day. On the 3rd day he counts them and finds that there are 37 lollies left in the bag. Write an expression for the total number of lollies, L , that Charlie has left after n days.

Answer:

$L = 46 - 3n$

Answer

MAKEorBREAK?

Question 36:

Lucy has been watching leaves fall off a tree in Autumn. Every day 6 more leaves fall off a particular tree. On the 4th day that Lucy saw this there were 64 leaves still on the tree. Write an expression for the total number of leaves, L , that are still on the tree after n days.

Answer:
 $L = 88 - 6n$

MAKEorBREAK?

Score

Answer

Question 37:

Joseph has been saving money to go to a concert. He already had some money in his savings account, and has been adding an extra \$5 per week. After 4 weeks Joseph has \$67 in his savings account. Which of the following is the correct expression for the total amount of money, M , that Joseph has in his savings account after n weeks?

- $M = 5n + 67$
- $M = 5n + 47$
- $M = 67 - 5n$
- $M = 47 - 5n$
- $M = 5n$

Answer:
B

MAKEorBREAK?

Score

Answer

Question 38:

Marsha is training for a marathon and increases the distance she runs each day by half a kilometre. On her 5th day of training she ran 4.5km. Which of the following is the correct expression for the total distance in kilometres, K , that Marsha will run on her n th day of training?

- $K = 0.5n + 4.5$
- $K = 0.5n$
- $K = 0.5n + 2$
- $K = 0.5n - 4.5$
- $K = 0.5n - 2$

Answer:
C

MAKEorBREAK?

Score

Answer

Question 39:

Billy has been growing beans and has noticed that his plants are producing 3 less beans each week than they did the previous week. On the 4th week that he noticed this he collected 35 beans from his plants. Which of the following is the correct expression for the total number of beans, B , that Billy collects from his plant in the n th week?

- $B = 35 - 3n$
- $B = 47 - 3n$
- $B = 3n + 35$
- $B = 3n + 47$
- $B = 3n + 23$

Answer:
B

MAKEorBREAK?

Score

Answer

Question 40:

Sarah inherited a stamp collection from her Grandad and decided to keep adding to the collection. She can afford to buy 4 more stamps each week. After 5 weeks of collecting, Sarah has 321 stamps in her collection. Which of the following is the correct expression for the total number of stamps, S , that Sarah has in her collection after n weeks?

- $S = 321 + 4n$
- $S = 4n - 321$
- $S = 301 + 4n$
- $S = 301 - 4n$
- $S = 4n$

Answer:
C

MAKEorBREAK?

Score

Answer

Question 41:

Simplify $\frac{3t}{5} + \frac{2t}{3}$

Answer:
 $\frac{19t}{15}$

MAKEorBREAK?

Score

Answer

Score

Answer

Question 42:

Simplify $\frac{x^2 - 25}{x + 5}$

Answer:

$x - 5$

MAKEorBREAK?

Score

Answer

Question 43:

Simplify $\frac{4g}{3} - \frac{g}{5}$

Answer:

$\frac{17g}{15}$

MAKEorBREAK?

Score

Answer

Question 44:

Simplify $\frac{x^2 - 36}{x - 6}$

Answer:

$x + 6$

MAKEorBREAK?

Score

Answer

Question 45:

Gary has a farm where he raises chickens and pigs. Altogether he has 19 animals with a total of 64 legs. Solve the following simultaneous equations to identify how many chickens and how many pigs Gary has.

$$c + p = 19$$

$$2c + 4p = 64$$

Answer:

13 pigs, 6 chickens

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Score

Answer

Question 46:

On Thursday Mike bought two drinks and three cookies for \$5.45. On Friday he bought one drink and five cookies for \$5.00.

Solve the following simultaneous equations to work out the individual prices of a drink and a cookie.

$$2d + 3c = 5.45$$

$$d + 5c = 5.00$$

Answer:

Drink = \$1.75, cookie = \$0.65

MAKEorBREAK?

Score

Answer

Question 47:

Megan bought 6 envelopes and 4 stamps for \$6.00. Joshua bought 5 envelopes and 7 stamps for \$6.65. Solve the following simultaneous equations to work out the individual prices of an envelope and a stamp.

$$6e + 4s = 6.00$$

$$5e + 7s = 6.65$$

Answer:

Stamp = 45c, envelope = 70c

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Question 48:

Beatrice plays a new version of rugby where she can score points for a try or a penalty. On Saturday her team scored 5 tries and 3 penalties, for a total of 36 points. On Sunday her team made 4 tries and 7 penalties, which gave them a total of 38 points.

Solve the following simultaneous equations to work out how many points a try and a penalty are each worth.

$$5t + 3p = 36$$

$$4t + 7p = 38$$

Answer:

Try = 6 points, penalty = 2 points

Score

Answer

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Question 49:

Rearrange the following equation to make n the subject:

$$s = 5n - 3p$$

Answer:

$$n = \frac{s + 3p}{5}$$

Score

Answer

MAKEorBREAK?

Question 50:

Rearrange the following equation to make p the subject:

$$f = \frac{g + p}{7}$$

Answer:

$$p = 7f - g$$

Score

Answer

MAKEorBREAK?

Question 51:

Rearrange the following equation to make r the subject:

$$A = \pi r^2$$

Answer:

$$r = \sqrt{\frac{A}{\pi}}$$

Score

Answer

MAKEorBREAK?

Question 52:

Rearrange the following equation to make t the subject:

$$f = \frac{3t + u}{3}$$

Answer:

$$t = \frac{3f - u}{3}$$

Score

Answer

MAKEorBREAK?

Question 53:

One positive integer is 3 more than twice another positive integer. The squares of these two integers have a difference of 144.

Write at least one equation to describe the situation, and use it to find the two integers.

Answer:

$$y = 2x + 3; y^2 - x^2 = 144; x = 5, y = 13$$

Score

Answer

MAKEorBREAK?

Score

Question 54:
 Carolyn is 7 years old and Corey is 11 years old. Form a relevant equation and use it to find out how many years it will take until Carolyn and Corey's ages in years, when multiplied together, will make 621.

Answer

Answer:
 $(x + 7)(x + 11) = 621$; 16 years time

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Score

Question 55:
 The difference between two numbers is 4. The sum of the squares of the numbers is 458.
 Write at least one equation to describe the situation, and use it to find the two numbers.

Answer

Answer:
 $X - y = 4$; $x^2 + y^2 = 458$; Two solutions: either 17 and 13, or -17 and -13.

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Question 56:
 A school is putting on a concert and plans to sell 220 tickets. Adults will pay \$6.50 each and children \$4.00 each. The costs for costumes, lighting, ticket printing, etc. have been estimated at \$645. The school wishes to make a profit of \$500.
 Write at least one equation to describe the situation, and use it to find the minimum number of adult tickets that must be sold for the school to make a \$500 profit?

Answer

Answer:
 $A + C = 220$; $6.50A + 4.00C = \$1145$;
 minimum 106 adult tickets

MAKEorBREAK?

Score

Question 57:
 A restaurant has 80 customers booked one evening. They sell small meals which cost \$7 each, and large meals which cost \$12 each. The running costs for the restaurant for the evening are estimated to be \$355, and the restaurant wishes to make \$400 profit.
 Write at least one equation to describe the situation, and use it to find the minimum number of large meals that must be sold for the restaurant to make a profit of \$400.

Answer

Answer:
 $S + L = 80$; $7S + 12L = 755$; minimum of 39 large meals

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Score

Question 58:
 A gardener prepares a trapezium shaped garden, and wishes to put a border on the two parallel sides. The two parallel sides of the trapezium have lengths $2x - 3$ and $2x + 5$ respectively. The width of the garden is $2x$ and the total area of the garden is $72m^2$.
 The formula for the area of a trapezium is $A = \frac{a+b}{2} \times h$ where a and b are the parallel sides and h is the width.
 Form an appropriate equation and use it to calculate the length of the two parallel sides of the garden.

Answer

Answer:
 $\frac{(2x-3)+(2x+5)}{2} \times 2x = 72$ QR
 Parallel sides are 5m and 13m.

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Score

Question 59:
 A rectangle has side lengths $2x + 1$ and $2x - 6$ respectively. The total area of the rectangle is $120m^2$.
 Form an appropriate equation and use it to calculate the dimensions of the rectangle.

Answer

Answer:
 $(2x + 1)(2x - 6) = 120$; $x = 7$ or $-\frac{9}{2}$;
 dimensions are 15m by 8m

MAKEorBREAK?

Score

Answer

Question 60:

A certain circle's area is three times its circumference.

The formula for the area of a circle is $A = \pi r^2$ and the circumference is $C = 2\pi r$, where r is the radius.

Write an appropriate equation and use it to find the length of the radius of this circle.

Answer:

$$\pi r^2 = 3(2\pi r); \text{ radius} = 6 \text{ units.}$$

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