

MID-YEAR REVIEW: ALGEBRA & EQUATIONS

1. Which of the following is the correct, simplified form of the algebraic expression below?

$$3x - 4x - 5 + 6x - (-3x) - 3$$

a) $2x - 8$

c) $8x - 8$

b) $10x - 8$

d) $8x + 8$

2. Simplify the following expressions.

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

c) $-6(5 - 4x)$

b) $(9x - 8) - (6x - 4)$

d) $(15x - 3) \div 3$

3. Every morning on his way to school, Matthew passes in front of the "Health O' Farm Gardens". The owner told Matthew that he grows 3 times more tomato plants than cucumber plants. In all, he has 1288 plants.

If x represents the number of tomato plants, which of the following equations can be used to find how many plants of each type he grows?

a) $(x + 3) + x = 1288$

c) $3x + x = 1288$

b) $x + \frac{x}{3} = 1288$

d) $3x - x = 1288$

4. Solve the following equations:

a) $6x + x + 4 = 2x + 16$

c) $2(5m + 4) = 8m + 12$

b) $\frac{6x - 4}{2} = 5x - 9$

d) $3y + 2(4y - 13) = -2y$

5. Which statement describes the following equation: $x + 7x = 96$

a) Julian has 7 times more hens than sheep. In all he has 96 animals.

b) Julian has 89 hens. If he adds his 7 sheep to this number, he has 96 animals.

c) 7 times the sum of the hens and the sheep that Julian has equals 96 animals.

d) Julian has 7 more hens than sheep. In all he has 96 animals.

MID-YEAR REVIEW: ALGEBRA & EQUATIONS

6. Together Jason and Nadia have 60 hockey cards. Nadia has twice as many as Jason.

Let x represent the number of cards that Jason has.

Which of these equations represents this situation?

a) $2x + \frac{x}{2} = 60$

c) $\frac{x + x}{2} = 60$

b) $2x + x = 60$

d) $x^2 + x = 60$

7. Marco spends 24 hours a week on his favourite activities: piano, television and the Internet. He spends twice as much time on the Internet as he does watching television. He spends three more hours playing the piano than surfing the Internet. Given x , the time spent watching television. Which of the equations represents this situation?

a) $x + 2x + 3 = 24$

c) $x + 2x + 2(3x) = 24$

b) $x + 2x + 3(2x) = 24$

d) $x + 2x + 2x + 3 = 24$

8. Mr. Stevens has won \$1000. He decides to donate the money to UNICEF, the Children's Hospital, and the Cancer Foundation.

- He gives the Children's Hospital twice as much money as he gives to UNICEF.
- He gives the Cancer Foundation \$200 more than the amount he gives to the Children's Hospital.

Let x represent the amount that he gives to UNICEF.

Which of the following equations represents this situation?

a) $2x + 200 = 1000$

c) $x + 2x + 2x + 200 = 1000$

b) $x + 2x + 200 = 1000$

d) $x + 2x + 2(x + 200) = 1000$

9. There are 3 members in the Swanson family - Father, Mother and daughter Lynn. Father is 5 years older than Mother. Lynn is 23 years younger than her father. The sum of their ages is 110 years.

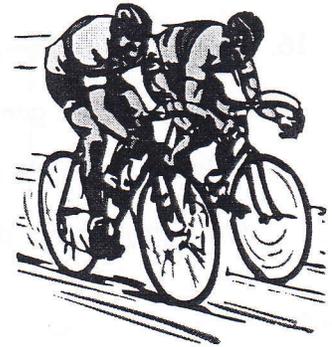
If " x " is Mother's age, write the equation that represents this situation.

MID-YEAR REVIEW: ALGEBRA & EQUATIONS

10. The length of a rectangular lot measures twice its width minus 10 m. The perimeter of the lot is 220m.

If x is the measure of the width of the lot, what equation can be used to represent this situation?

11. On Monday, a group of friends went biking. On Tuesday, they biked 5km more than three times the distance they had biked on Monday. They also went biking on Wednesday and travelled twice the distance they had travelled on Tuesday. The group knows that they covered a total of 105 km during the three days.



How many kilometers did they bike on Tuesday?

12. Elise and Claudia both have a savings account in the same bank. Elise has \$70 less in her account than triple the amount Claudia has. Together they have \$500.

If x represents the amount in Claudia's savings account, how much money is in Elise's savings account?

13. Valerie, her brother Matthew and their friend Philip collected money to help homeless teenagers in their neighbourhood. Philip collected a quarter of the amount Matthew collected. On her own, Valerie collected \$97.35. All together they collected \$300.00.

How much money did Matthew and Philip collect individually?

14. Karieka, Samsara, and Judy are collecting empty bottles for their graduation fundraiser. Karieka collected 4 fewer bottles than 2 times the number of bottles that Samsara collected. Judy collected 5 more than 3 times the number of bottles that Samsara collected. Together, they collected a total 481 bottles.

How many bottles did each person collect?

MID-YEAR REVIEW: ALGEBRA & EQUATIONS

15. Melanie took 3 times longer than Diane did to finish a game of skill. Jill finished the game in twice the time it took Melanie and Diane combined. All together, it took the three girls 36 minutes to finish the game.

How long did it take each girl to finish the game?

16. Three friends share a season pass to watch the games of a local hockey team. The team played 52 games this season. Pierre went to three times as many games as Christian. Isabelle attended four games fewer than Pierre did.

How many games did each person attend?

17. Kristen picked 30 flowers from her garden and arranged them into a bouquet. She chose her three favourite flowers: carnations, roses and daisies. She picked 5 fewer carnations than roses. She also picked 3 times as many daisies as carnations.

How many flowers of each type were in Kristen's bouquet?

18. Stephanie, her brother Ed, and sister Caroline each contributed money to buy their parents an anniversary gift. Ed contributed twice as much as Stephanie and Caroline contributed \$10 more than three times the amount contributed by Stephanie. Together they contributed \$310.

How much did each person contribute?

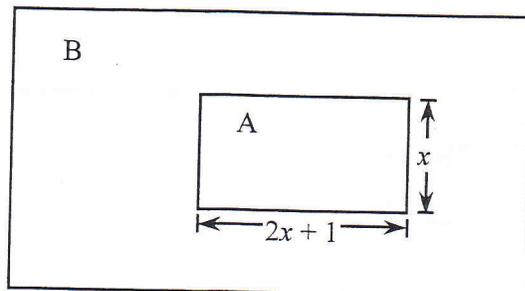
19. Amy, Barbara and Carly are Girl Guides. They went door to door asking people in their neighborhood to support their organization by donating empty soft drink bottles. Barbara collected 5 less than 3 times the number of bottles that Amy collected. Carly collected 4 more than two times the number of bottles that Amy collected. They collected a total of 245 bottles.

How many bottles did each person collect?

MID-YEAR REVIEW: ALGEBRA & EQUATIONS

20. The owners of a ranch need to put a new fence around the horses' enclosure (Rectangle A) and the field (Rectangle B).

Here is the model they will follow:



The two rectangles are similar. The length of the large rectangle is triple that of the small rectangle. The total length of fencing needed for the horses' enclosure (Rectangle A) and the field (Rectangle B) is 248 metres.

What is the actual perimeter of the horses' enclosure?