HAIRY *VARIABLES*

solving for *variables* STUDY TIP: SOLVING FOR A VARIABLE

- ·   Do the inverse (opposite) operation.
- ·   If you're solving a two-step equation, first undo the addition or subtraction.

Then undo the multiplication or division.

EXAMPLES:
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d + 12 = 20
Undo + 12 with – 12
d = 20 – 12
d = 8

5r–3 = 17
Undo – 3 with + 3
5r = 17 + 3
5r = 20
Then undo x 5 with / 5
r = 20 /5
r = 4
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For problems 1 to 6, fill in the circle of the correct answer.

1. You're a well-known and highly-paid hair stylist. Say the variable a represents the hair length of one of your customers, Izzy Goinbald. To find out how long Izzy's hair is after you cut off 5 inches, which expression could you evaluate?

A a + 5

B a - 5

C 5 - a

D a x 5

2. "Hair" you go, another problem: If m = 5, what is the value of 3m + 2?

A 15

B 17

C 25

D 37

3. "Brush" up on your variable skills for this one: To solve 2x + 7 = 19, what should you do first?

A Subtract 19 from both sides of the equation.

B Subtract 7 from both sides of the equation.

C Multiply both sides of the equation times 2.

D Divide both sides of the equation by 7.

4. Customer Bee Lodrier asks you, "If q = 12, which of the following expressions has the greatest value?"

A q + 4

B q - 4

C 4q

D q / 4

5. Now customer Cy Deberns challenges you to solve this one: 3x + 5x + 4x + 6 =

A 18x

B 8x + 10

C 12x + 6

D 3x + 18

6. Mya Splittenz wants you to solve for p, if 6p - 3 = 27: A p = 4 B p = 5 C p = 6 D p = 7

For problems 7 to 11, write in the correct answer.

- 7. Quinn Tupletz brings his 5 identical sons in for identical haircuts. Say x represents the cost of each haircut. Use the variable to write an equation showing that Quinn spent a total of $86 on the haircuts.
- 8. In the middle of his haircut, Quinn's son Tippy Tupletz asks you, "If x = 7 and y = 4, what is the value of..."

a. 3x + y?

b. 5x - 8y?

- 9. Di Myair wants you to shave this expression in her hair: 12d + 7d + 5 - 3d + 2d. But there's not enough room! What's a simpler way to write that expression?
- 10. You can't undo a bad haircut, but you can undo a math operation. Say you wanted to use inverse operations to solve for w in this equation:
- 8w+9=41

a. Which part of the equation should you undo first?

b. What is the value of w?

11. Pam Purm purchases 3 hair clips on Friday. She buys 4 more on Saturday, and another 6 on Sunday. (It was a bad perm!) The clips each cost the same price. The total cost of the hair clips was $16.90.

a. Write an equation you could use to find the cost of one hair clip:

b. How much does one clip cost?

So, you think you're the consummate consumer, a shrewd shopper, a bargain buyer? Show us your savvy shopping skills by taking this test on shopping math. Ka-ching!

ANSWER KEY

1. b
2. b
3. b
4. c
5. c
6. b
7. $5x = \$86$
8. a. 25

b. 3

- 9. $18d + 5$
- 10a. $+ 9$

b. 4

11a. $13x = \$16.90$ or $3x + 4x + 6x = \$16.90$

b. $1.30