

Algebraic Skills

- 1 Which of the following is equivalent to the expression below?

$$(4x - 5) + (2x + 1)$$

- a $2x - 6$
- b $2x - 4$
- c $6x - 6$
- d $6x - 4$

- 2 What is the value of $6x^2$ when $x = \frac{1}{3}$?

- a $\frac{2}{9}$
- b $\frac{2}{3}$
- c 2
- d 4

- 3 Consider the expression below.

$$3x^2(5x^2 - 2x + 1)$$

Which of the following is equivalent to this expression?

- a $8x^2 - 2x + 1$
- b $8x^2 + x + 4$
- c $15x^4 - 2x + 1$
- d $15x^4 - 6x^3 + 3x^2$

- 4 Nadia lives 11.4 km from school and rides her bike to school every day.

The equation $d = 11.4 - 0.6t$ represents the relationship between d , her distance from school in km, and t , her time spent travelling in minutes.

If she leaves home at 8:05 a.m., what time will she get to school?

- a 8:11 a.m.
- b 8:16 a.m.
- c 8:17 a.m.
- d 8:24 a.m.

- 5 Josie works in a sports store. She receives 8% of the total sales each day. One day, she receives \$35 for her portion of the total sales. What are the total sales for that day?

- a \$37.80
- b \$43.75
- c \$280.00
- d \$437.50

- 6 Which of the following represents the expression $2(3x + 4) + 3(x - 1)$ in a simplified form?

- a $9x + 3$
- b $9x + 5$
- c $8x + 8$
- d $8x + 11$

- 7 What is the value of $(x^2)^3$ when $x = \frac{1}{2}$?

- a $\frac{1}{4}$
- b $\frac{1}{12}$
- c $\frac{1}{32}$
- d $\frac{1}{64}$

- 8 The expression below can be simplified.

$$\frac{(x^2y)^3}{(xy)^2}$$

Which of the following shows the expression in its simplest form?

- a x^4y
- b x^4
- c xy
- d x^3y

- 9 The sum of the perimeters of two shapes is represented by $13x + 4y$.

The perimeter of one shape is represented by $4x - 2y$.

Which expression represents the perimeter of the other shape?

- a $9x + 2y$
- b $9x + 6y$
- c $17x + 2y$
- d $17x + 6y$

- 10 Identical bottles are packed in a box. The box will hold a maximum of 38 bottles. The relationship between M , the total mass of the box and its contents, and n , the number of bottles in the box, is represented by the equation $M = 500n + 800$.

Which of the following are possible integer values for the variable n ?

- a n is greater than 37.
- b n is greater than or equal to 0.
- c n is greater than 0 but less than 39.
- d n is greater than or equal to 0 but less than 39.

11 Alfredo and his wife, Jody, work in a restaurant.

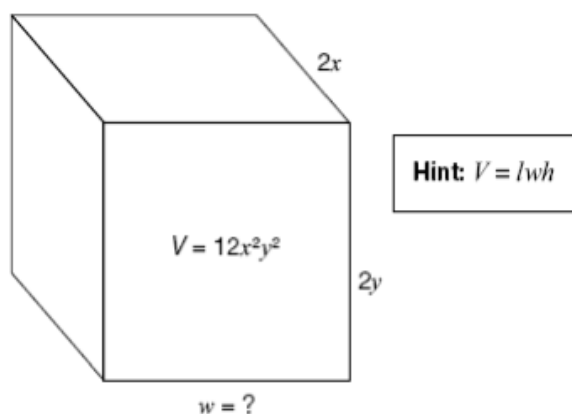
Last week Alfredo received an average of \$15 in tips for each of the 55 tables he served. Jody received an average of \$20 in tips for each of the 60 tables she served.

They are planning a weekend trip. Alfredo will pay a total of \$220 for their hotel room and Jody will pay a total of \$160 for their rental car.

How much of their combined tips will be left over after they have paid for their hotel room and rental car?

- a \$1620
- b \$1645
- c \$2025
- d \$2405

12 A box with a volume of $12x^2y^2$ is shown below.



What is the width of the box?

- a $2xy$
- b $3xy$
- c $4x^3y^3$
- d $8x^3y^3$

A CD Sell-Off

Juan belongs to a CD club that sells CDs for \$11.44 each before tax. His first shipment of CDs costs \$90.49 including 13% tax.

How many CDs are in his first shipment?

Show your work.

B Competing Sales

Sam is interested in buying a TV. At Fair Deal, the TV is regularly priced at \$599.99 and is on sale for 20% off the regular price. At Big Big Discount, the same TV is regularly priced at \$899.99 and is on sale for 30% off the regular price.



What is the difference in the sale price of the TV between these two stores?

Show your work.

C Keepin' Tabs

A student council collects aluminum pop tabs to raise money to purchase a wheelchair. A company buys the pop tabs for \$0.88 per kilogram.

If 1267 pop tabs have a mass of one pound, how many pop tabs are needed to purchase a wheelchair worth \$1500?

Show your work.

Hint:
1 kilogram = 2.2 pounds