# Answers

**1.**

The average temperature during **10 days** in March is given by the expression
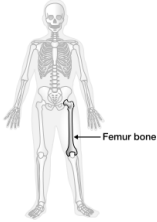
$$\frac{6(-2) - 5 + 3(-1)}{10}$$

What is the value of the expression?

a 2

b 1

c −1

**d −2**

Scientists find that the height of a person, $h$, in centimetres, is related to the length of the person's femur bone, $f$, in centimetres, according to the following formula:

$$h = 69.09 + 2.24f$$



← Femur bone

According to the formula, what is **the height** of a person with a femur bone of 48.6 cm in length?

a 109 cm

**b 178 cm**

c 186 cm

d 347 cm

**2.**

Simplify fully:

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

a $2x^2 - 17x$

b $2x^2 - 23x$

c $17x^2 - 5x$

**d $17x^2 - 20x$**

**3.**

Simplify the following algebraic expression:

$$\frac{a^6 b^4}{a^2 b}$$

F $\frac{a^3}{b^3}$

G $\frac{a^4}{b^3}$

H $a^3 b^3$

**J $a^4 b^3$**

**4.**

**5.**

Bob is thinking of a number. He adds 15 to his number and finds that the result is four times his number.



Suppose $x$ is Bob's number. Which equation is always true?

a $15 - x = \frac{x}{2}$

b $15 - x = 4x$

c $x + 15 = \frac{x}{4}$

**d $x + 15 = 4x$**

**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 $8x + 11$

**8.** Simplify the following expression:

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

a $6x^2 - 5x + 3$

b $6x^2 - 6x$

c $15x^2 - 5x$

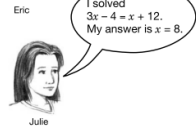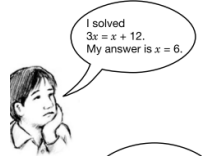**d $6x^2 + 4x$**

**9.** The expression below can be simplified.

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

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

**a $x^4 y$**

b $x^4$

c $xy$

d $x^3 y$

**7.**

Eric and Julie are each asked to solve an equation.



I solved
$3x = x + 12$.
My answer is $x = 6$.

Eric

I solved
$3x - 4 = x + 12$.
My answer is $x = 8$.

Julie

Who has correctly solved his or her equation?

F Eric only

G Julie only

**H Both Eric and Julie**

J Neither of them

**10.** Simplify fully:

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

a $2x^2 - 17x$

b $2x^2 - 23x$

c $17x^2 - 5x$

**d $17x^2 - 20x$**

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**11.**

While experimenting with a toy rocket, Dan determines that he can model the rocket's height, $h$, in metres, with respect to time, $t$, in seconds, using the equation

$$h = \frac{1}{2} t^2$$



Which calculation correctly finds the value of $h$ when $t = 10$?

a $h = \frac{1}{2} \times 10^2$
$= 5^2$
$= 25$

b $h = \frac{1}{2} \times 10^2$
$= \frac{1}{2} \times 20$
$= 10$

**c** $h = \frac{1}{2} \times 10^2$
$= \frac{1}{2} \times 100$
$= 50$

d $h = \frac{1}{2} \times 10^2$
$= \frac{1}{4} \times 100$
$= 25$

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