

1. The average temperature during **10 days** in March is given by the expression

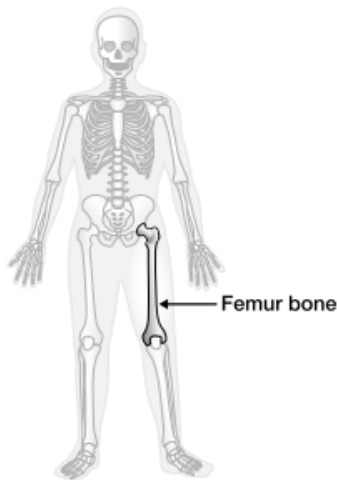
$$\frac{6(-2) - 5 + 3(-1)}{10}$$

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:

$$h = 69.09 + 2.24f$$



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

4.

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:

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

- F $\frac{a^3}{b^3}$
- G $\frac{a^4}{b^3}$
- H a^3b^3
- J a^4b^3

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.

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

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

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

7. Eric and Julie are each asked to solve an equation.



Eric

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



Julie

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

Who has correctly solved his or her equation?

- F Eric only
- G Julie only
- H Both Eric and Julie
- J Neither of them

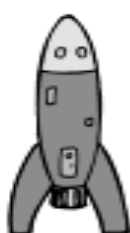
10. Simplify fully:

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

- a $2x^2 - 17x$
- b $2x^2 - 23x$
- c $17x^2 - 5x$
- d $17x^2 - 20x$

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