

MATH 5: MATHEMATICAL HOCKEY

1. Calculate: $\left(\frac{2^3 3^5 5^6}{2^2 5^3}\right)$

2. Simplify: $\left(\frac{a^4 b^3}{a^2 b}\right)^3$

3. Calculate: $\left(\frac{2^7 3^{15}}{2^5 3^{16}}\right)$

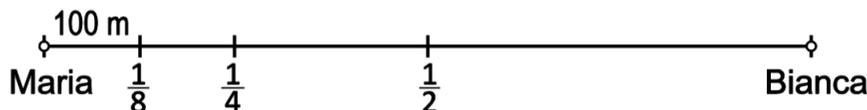
4. Calculate: $\left(\frac{5^6 7^2 5^3 6}{5^{10} 7^2}\right)^2$

5. Simplify: $\left(\frac{x^2 y z}{x^3 y^2 z^2}\right)$

6. Anna, Bob and Chris are altogether 31 years old. How old will all three be altogether in three years?

7. Michael must take a tablet every 15 minutes. He takes the first at 11:05. When does he take the fourth?

8. How far must Maria walk to reach her friend Bianca?



9. Matthias is catching fish. If he had caught three times as many fish as he has actually caught, he would have 12 more fish. How many fish has he caught?
10. A cake weighs 900 g. Paul cuts it into 4 pieces. The biggest piece weights exactly as much as the other three pieces together. How much does the biggest piece weigh?
11. Solve the following equation
 $5x + 6 = 13 - 2x$
12. Solve the following equation
 $5(x + 1) + 3(x - 1) = 18$
13. Solve the following equation
 $3(x - 5) = -3$
14. Solve the following equation
 $\frac{x - 7}{x + 2} = 4$
15. Solve the following equation
 $8 - 2(x + 3) = -6$
16. Convert from base-10 to binary:
3

17. Convert from base-10 to binary:
8

18. Convert from base-10 to binary:
15

19. Convert from binary to base-10:
 10_2

20. Convert from binary to base-10:
 101_2

21. Convert from binary to base-10:
 111_2

22. Convert from binary to base-10:
 1000_2

23. Convert from binary to base-10:
 1101_2

24. Write using scientific notation:
the distance from the Earth to the Sun is $\approx 150,000,000,000$ m