

## Speed Math Sample

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Printed Name \_\_\_\_\_ School \_\_\_\_\_

Division (circle one):      Calc                  Alpha                  Theta                  Sponsor

- \_\_\_\_\_ 1. Evaluate the quotient  $21 \overline{)420063}$
- \_\_\_\_\_ 2. A special fund was established with an initial amount of \$1000. The first expenditure was \$147.32. How much was left in the fund after this initial expenditure?
- \_\_\_\_\_ 3. Find the area of an  $80^\circ$  sector of a circle with radius 12.
- \_\_\_\_\_ 4. In a bicycle shop, there were 48 bicycles and tricycles for sale. If the total number of wheels was 110, how many tricycles were there?
- \_\_\_\_\_ 5. Express in simplest radical form:  $\sqrt{432}$
- \_\_\_\_\_ 6. Find the sum:  $1 + 2 + 4 + \dots + 512 + 1024$
- \_\_\_\_\_ 7. An architect knows that it will cost \$20 to paint all the surfaces of a building model. Then he decides to increase the scale factor of the model by 50%. How much will it cost for the paint for the new model?
- \_\_\_\_\_ 8. Find the units digit of the following number:  $6^{23} + 5^{37}$ .
- \_\_\_\_\_ 9. It takes 60 seconds to travel 1 mile at 60 miles per hour. How many seconds does it take to travel 1 mile at 50 miles per hour?
- \_\_\_\_\_ 10. How many odd divisors does 360 have?
- \_\_\_\_\_ 11. Simplify:  $43^2 - 37^2$
- \_\_\_\_\_ 12. What is the interest on a loan of \$12000 for 2 years at 7% simple interest?
- \_\_\_\_\_ 13.  $\overline{AB}$  is a diameter of a circle with radius 11. Chord  $\overline{CD}$  intersects  $\overline{AB}$  at point P. If  $BP = 6$  and  $CP = 8$ , find the length of chord  $\overline{CD}$ .
- \_\_\_\_\_ 14. Find the total surface area of an open can (a cylinder with no top) with base radius 4 cm and height 8 cm.
- \_\_\_\_\_ 15. Find the equation, in slope-intercept form, of the line perpendicular to the line  $3x - y = 2$  and containing the point  $(6, 2)$ .
- \_\_\_\_\_ 16. Give the prime factorization of 1591.
- \_\_\_\_\_ 17. A parallelogram has side lengths of 3 cm and 5 cm and a short diagonal of length 4 cm. Find the area in square centimeters of the parallelogram.
- \_\_\_\_\_ 18. Express the difference as a base 7 number:  $412_7 - 136_7$
- \_\_\_\_\_ 19.  $157^2 = 24649$ , find  $158^2$ .
- \_\_\_\_\_ 20. Multiply:  $(\sqrt{3} - 1)(2\sqrt{3} - 1)$
- \_\_\_\_\_ 21. A square with side length 8 is inscribed in a circle. Find the area of the circle.
- \_\_\_\_\_ 22. Solve for  $x$ :  $10^x = \sqrt{1000}$
- \_\_\_\_\_ 23. How many ways can you make change for a dollar using only quarters and/or nickels?
- \_\_\_\_\_ 24. Convert the repeating base 5 number  $0.333\dots_5$  to a common fraction in base 10.
- \_\_\_\_\_ 25.  $4377 \text{ times } 7125 = 311?6125$ . Find the missing digit.

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- 20003 \_\_\_\_\_ 1. Evaluate the quotient  $21 \overline{)420063}$
- 852.68 \_\_\_\_\_ 2. A special fund was established with an initial amount of \$1000. The first expenditure was \$147.32. How much was left in the fund after this initial expenditure?
- $32\pi$  \_\_\_\_\_ 3. Find the area of an  $80^\circ$  sector of a circle with radius 12.
- 14 \_\_\_\_\_ 4. In a bicycle shop, there were 48 bicycles and tricycles for sale. If the total number of wheels was 110, how many tricycles were there?
- $12\sqrt{3}$  \_\_\_\_\_ 5. Express in simplest radical form:  $\sqrt{432}$
- 2047 \_\_\_\_\_ 6. Find the sum:  $1 + 2 + 4 + \dots + 512 + 1024$
- 45 \_\_\_\_\_ 7. An architect knows that it will cost \$20 to paint all the surfaces of a building model. Then he decides to increase the scale factor of the model by 50%. How much will it cost for the paint for the new model?
- 1 \_\_\_\_\_ 8. Find the units digit of the following number:  $6^{23} + 5^{37}$ .
- 72 \_\_\_\_\_ 9. It takes 60 seconds to travel 1 mile at 60 miles per hour. How many seconds does it take to travel 1 mile at 50 miles per hour?
- 6 \_\_\_\_\_ 10. How many odd divisors does 360 have?
- 480 \_\_\_\_\_ 11. Simplify:  $43^2 - 37^2$
- 1680 \_\_\_\_\_ 12. What is the interest on a loan of \$12000 for 2 years at 7% simple interest?
- 20 \_\_\_\_\_ 13.  $\overline{AB}$  is a diameter of a circle with radius 11. Chord  $\overline{CD}$  intersects  $\overline{AB}$  at point P. If  $BP = 6$  and  $CP = 8$ , find the length of chord  $\overline{CD}$ .
- $80\pi$  \_\_\_\_\_ 14. Find the total surface area of an open can (a cylinder with no top) with base radius 4 cm and height 8 cm.
- $y = -\frac{1}{3}x + 4$  \_\_\_\_\_ 15. Find the equation, in slope-intercept form, of the line perpendicular to the line  $3x - y = 2$  and containing the point  $(6, 2)$ .
- $37 \cdot 43$  \_\_\_\_\_ 16. Give the prime factorization of 1591.
- 12 \_\_\_\_\_ 17. A parallelogram has side lengths of 3 cm and 5 cm and a short diagonal of length 4 cm. Find the area in square centimeters of the parallelogram.
- 243 \_\_\_\_\_ 18. Express the difference as a base 7 number:  $412_7 - 136_7$
- 24964 \_\_\_\_\_ 19.  $157^2 = 24649$ , find  $158^2$ .
- $4 + 3\sqrt{3}$  \_\_\_\_\_ 20. Multiply:  $(\sqrt{3} - 1)(2\sqrt{3} - 1)$
- $32\pi$  \_\_\_\_\_ 21. A square with side length 8 is inscribed in a circle. Find the area of the circle.
- 1.5 or equiv\_ \_\_\_\_\_ 22. Solve for  $x$ :  $10^x = \sqrt{1000}$
- 5 \_\_\_\_\_ 23. How many ways can you make change for a dollar using only quarters and/or nickels?
- $\frac{3}{4}$  \_\_\_\_\_ 24. Convert the repeating base 5 number  $0.333\dots_5$  to a common fraction in base 10.
- 8 \_\_\_\_\_ 25.  $4377$  times  $7125 = 311?6125$ . Find the missing digit.

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