

Name _____

Date _____

1.5 Tests for divisibility — worksheet

Use tests of divisibility to check whether one number divides exactly into another. · 54 questions ·
Show your working.

Remember

- $\div 2$ — the last digit is even
- $\div 3$ — the sum of the digits is divisible by 3
- $\div 4$ — the number formed by the last two digits is divisible by 4
- $\div 5$ — the last digit is 0 or 5
- $\div 6$ — it passes the tests for both 2 and 3
- $\div 8$ — the number formed by the last three digits is divisible by 8
- $\div 9$ — the sum of the digits is divisible by 9
- $\div 10$ — the last digit is 0
- $\div 11$ — the difference between the sum of the odd-position digits and the sum of the even-position digits is 0 or a multiple of 11
- You can combine tests when the two divisors share no factors: a number divisible by 3 and by 4 is divisible by 12. But 2 and 4 *do* share a factor, so passing both does not guarantee divisibility by 8.

A · Fluency — Apply one test at a time.

- 1 Is 342 divisible by 3?
☐ Yes
☐ No
- 2 Is 1,234 divisible by 4?
☐ Yes
☐ No
- 3 Is 4,530 divisible by 6?
☐ Yes
☐ No
- 4 Is 2,915 divisible by 5?
☐ Yes
☐ No
- 5 Is 918 divisible by 9?
☐ Yes
☐ No
- 6 Is 7,128 divisible by 8?
☐ Yes
☐ No

- 7** Is 5,060 divisible by 4?
☐ Yes
☐ No
- 8** Is 8,514 divisible by 9?
☐ Yes
☐ No
- 9** Is 3,456 divisible by 6?
☐ Yes
☐ No
- 10** Is 2,025 divisible by 25?
☐ Yes
☐ No
- 11** Is 7,315 divisible by 10?
☐ Yes
☐ No
- 12** Is 6,402 divisible by 3?
☐ Yes
☐ No
- 13** Is 9,108 divisible by 4?
☐ Yes
☐ No
- 14** Is 5,555 divisible by 11?
☐ Yes
☐ No
- 15** Is 4,862 divisible by 11?
☐ Yes
☐ No
- 16** Is 13,572 divisible by 6?
☐ Yes
☐ No
- 17** Is 81,000 divisible by 8?
☐ Yes
☐ No
- 18** Is 2,461 divisible by 9?
☐ Yes
☐ No
- 19** Which of 2, 3, 4, 5, 6, 8, 9, 10, 11 divide exactly into 216? List them in order, separated by commas.

- 20** Which of 2, 3, 4, 5, 6, 8, 9, 10, 11 divide exactly into 385? List them in order, separated by commas.

- 21 Which of 2, 3, 4, 5, 6, 8, 9, 10, 11 divide exactly into 924? List them in order, separated by commas.
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- 22 Which of 2, 3, 4, 5, 6, 8, 9, 10, 11 divide exactly into 1001? List them in order, separated by commas.
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B · Reasoning — Missing digits and combining tests.

- 23 What is the smallest digit that can replace ■ so that 47■ is divisible by 3?
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- 24 What is the largest digit that can replace ■ so that 47■ is divisible by 3?
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- 25 The number 3■58 is divisible by 3. What is the smallest possible value of ■?
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- 26 The number 3■58 is divisible by 3. List all possible values of ■, separated by commas.
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- 27 The number 5■2 is divisible by 4. What is the largest possible value of ■?
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- 28 The number 12■ is divisible by 9. What is ■?
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- 29 Which of these numbers is divisible by 11?
- ☐ 2451
 - ☐ 3728
 - ☐ 5148
 - ☐ 6217
- 30 A number is divisible by both 2 and 3. Which other number must it be divisible by?
- ☐ 4
 - ☐ 5
 - ☐ 6
 - ☐ 9
- 31 A number is divisible by both 2 and 4. Does that mean it is divisible by 8?
- ☐ Yes, always
 - ☐ No, not always
- 32 Is every number that ends in 0 divisible by 5?
- ☐ Yes
 - ☐ No
- 33 Is every number divisible by 9 also divisible by 3?
- ☐ Yes
 - ☐ No
- 34 Is every number divisible by 3 also divisible by 9?
- ☐ Yes
 - ☐ No

C · Challenge — Build numbers to order.

- 35** A number is divisible by 66 when it is divisible by 6 and by 11. Is 4 356 divisible by 66?
Answer 1 for yes, 0 for no.

- 36** What is the smallest whole number greater than 22 222 that is divisible by 9?

- 37** Use the digits 4, 5, 6 and 7 once each to make the largest 4-digit number that is divisible by 4.

- 38** Use the digits 1, 2, 3 and 6 once each to make the smallest 4-digit number that is divisible by 6.

- 39** Every digit of a number is 4 and the number has 6 digits (444 444). Is it divisible by 3?
Answer 1 for yes, 0 for no.

- 40** Find the smallest 4-digit number that is divisible by 3, 4 and 5.

- 41** Find the smallest 3-digit number that is divisible by both 4 and 9.

- 42** How many numbers between 1 and 100 inclusive are divisible by 3 but not by 9?

D · Word problems — Packing, sharing and seating.

- 43** A school has 1 236 students. Can they be split exactly into teams of 4? Answer 1 for yes, 0 for no.

- 44** A theatre has 2 025 seats arranged in rows of 25. Is that possible with no seats left over?
Answer 1 for yes, 0 for no.

- 45** A farmer has 8 514 eggs to pack into boxes of 9. How many boxes does he fill, if every box is full?

- 46** \$7 128 is shared equally between 8 charities. How many dollars does each receive?

- 47** A factory produces 4 530 bottles. They are packed 6 to a crate. How many crates are filled?

- 48** A stadium seats 13 572 people in blocks of 12. How many blocks are there?

- 49** A charity collects \$3 456. It wants to give equal whole-dollar amounts to 6 projects. How many dollars does each project get?
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- 50** A shop has 385 pencils. It wants to sell them in packs of 5 with none left over. How many packs?
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- 51** A code must be a 3-digit number divisible by 10 and by 9. What is the smallest possible code?
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- 52** A bus company has 924 passengers and wants to fill buses of equal size. It tries sizes 4, 6, 8 and 11. Which is the largest size that works with no one left over?
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- 53** A hall holds 1 001 people. Is 1 001 divisible by 11? Answer 1 for yes, 0 for no.
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- 54** A printer prints 81 000 leaflets, packed 8 to a bundle. How many bundles?
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