

Mental Math · Percent Sense — Practice

CKSTEM Math Problem Solving · Grades 6–8

1 CARVE THE BAR

What is 50% of 86?

WORK IT OUT HERE

2 CARVE THE BAR

What is 10% of 360?

WORK IT OUT HERE

3 CARVE THE BAR

What is 25% of 56?

WORK IT OUT HERE

4 CARVE THE BAR

What is 1% of 400?

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5 CARVE THE BAR

A 240-question practice set — you have finished 75% of it. How many questions is that?

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6 CARVE THE BAR

A jacket costs \$84. It is 50% off today. How many dollars do you save?

WORK IT OUT HERE

7 CARVE THE BAR

What is 75% of 160?

WORK IT OUT HERE

8 CARVE THE BAR

A water tank holds 500 L and is 10% full. How many litres is that?

WORK IT OUT HERE

9 CARVE THE BAR

A bakery baked 720 cookies and packed 75% of them into gift boxes. How many cookies were boxed?

WORK IT OUT HERE

10 CARVE THE BAR

A phone battery shows 75% on a 4000 mAh pack. How many mAh of charge is left?

WORK IT OUT HERE

11 ALL SEVEN ANCHORS

What is 20% of 60?

WORK IT OUT HERE

12 ALL SEVEN ANCHORS

What is 5% of 200?

WORK IT OUT HERE

13 ALL SEVEN ANCHORS

What is 10% of 90?

WORK IT OUT HERE

14 ALL SEVEN ANCHORS

What is 50% of 90?

WORK IT OUT HERE

15 ALL SEVEN ANCHORS

A restaurant bill is \$80. You leave a 20% tip. How much is the tip?

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16 ALL SEVEN ANCHORS

What is 5% of 140?

WORK IT OUT HERE

17 ALL SEVEN ANCHORS

A 250-page book — you have read 20% of it. How many pages is that?

WORK IT OUT HERE

18 ALL SEVEN ANCHORS

What is 75% of 120?

WORK IT OUT HERE

19 ALL SEVEN ANCHORS

A community garden has 280 plots and 75% of them are planted with vegetables. How many plots have vegetables?

WORK IT OUT HERE

20 ALL SEVEN ANCHORS

A swim team of 240 swimmers — 5% qualified for finals. How many qualified?

WORK IT OUT HERE

21 SCALE THE ANCHOR

What is 110% of 60?

WORK IT OUT HERE

22 SCALE THE ANCHOR

What is 90% of 80?

WORK IT OUT HERE

23 SCALE THE ANCHOR

What is 7.5% of 80?

WORK IT OUT HERE

24 SCALE THE ANCHOR

What is 2.5% of 200?

WORK IT OUT HERE

25 SCALE THE ANCHOR

A \$150 jacket is marked up to 120% of its old price. What is the new price?

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26 SCALE THE ANCHOR

What is 95% of 200?

WORK IT OUT HERE

27 SCALE THE ANCHOR

A recipe is scaled to 175% of a 32 g serving of chocolate. How many grams now?

WORK IT OUT HERE

28 SCALE THE ANCHOR

What is 12.5% of 240?

WORK IT OUT HERE

29 SCALE THE ANCHOR

A population of 400 grows to 125% of its size. What is the new count?

WORK IT OUT HERE

30 SCALE THE ANCHOR

What is 0.5% of 600?

WORK IT OUT HERE

31 STACK & UNSTACK ANCHORS

What is 15% of 80?

WORK IT OUT HERE

32 STACK & UNSTACK ANCHORS

What is 30% of 90?

WORK IT OUT HERE

33 STACK & UNSTACK ANCHORS

What is 60% of 140?

WORK IT OUT HERE

34 STACK & UNSTACK ANCHORS

What is 40% of 120?

WORK IT OUT HERE

35 STACK & UNSTACK ANCHORS

A \$240 bike is 15% off. How many dollars do you save?

WORK IT OUT HERE

36 STACK & UNSTACK ANCHORS

What is 65% of 200?

WORK IT OUT HERE

37 STACK & UNSTACK ANCHORS

A quiz had 80 marks and you scored 45%. How many marks is that?

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38 STACK & UNSTACK ANCHORS

What is 35% of 120?

WORK IT OUT HERE

39 STACK & UNSTACK ANCHORS

A \$240 ticket order is charged at 115% after fees. What is the total?

WORK IT OUT HERE

40 STACK & UNSTACK ANCHORS

What is 3.5% of 400?

WORK IT OUT HERE

41 DIVIDE THEN MULTIPLY

What is $33\frac{1}{3}\%$ of 90?

WORK IT OUT HERE

42 DIVIDE THEN MULTIPLY

What is 12.5% of 80?

WORK IT OUT HERE

43 DIVIDE THEN MULTIPLY

What is $66\frac{2}{3}\%$ of 60?

WORK IT OUT HERE

44 DIVIDE THEN MULTIPLY

What is 37.5% of 64?

WORK IT OUT HERE

45 DIVIDE THEN MULTIPLY

What is $16\frac{2}{3}\%$ of 144?

WORK IT OUT HERE

46 DIVIDE THEN MULTIPLY

A \$96 board game is 62.5% off. How many dollars do you save?

WORK IT OUT HERE

47 DIVIDE THEN MULTIPLY

What is $83\frac{1}{3}\%$ of 240?

WORK IT OUT HERE

48 DIVIDE THEN MULTIPLY

What is 87.5% of 48?

WORK IT OUT HERE

49 DIVIDE THEN MULTIPLY

What is 87.5% of 144?

WORK IT OUT HERE

50 DIVIDE THEN MULTIPLY

What is $33\frac{1}{3}\%$ of 50? Give the exact answer as a fraction.

WORK IT OUT HERE

51 A PERCENT OF A PERCENT

What is 22.5% of 80?

WORK IT OUT HERE

52 A PERCENT OF A PERCENT

What is 12% of 200?

WORK IT OUT HERE

53 A PERCENT OF A PERCENT

What is 15% of 120?

WORK IT OUT HERE

54 A PERCENT OF A PERCENT

What is 14% of 150?

WORK IT OUT HERE

55 A PERCENT OF A PERCENT

A \$400 TV is 13% off. How many dollars do you save?

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56 A PERCENT OF A PERCENT

What is 22.5% of 320?

WORK IT OUT HERE

57 A PERCENT OF A PERCENT

What is 12% of 350?

WORK IT OUT HERE

58 A PERCENT OF A PERCENT

What is 27.5% of 360?

WORK IT OUT HERE

59 A PERCENT OF A PERCENT

A library has 600 books and 13% are graphic novels. How many is that?

WORK IT OUT HERE

60 A PERCENT OF A PERCENT

What is 1.2% of 200?

WORK IT OUT HERE

61 LEAN ON THE WHOLE

What is 99% of 400?

WORK IT OUT HERE

62 LEAN ON THE WHOLE

What is 98% of 50?

WORK IT OUT HERE

63 LEAN ON THE WHOLE

What is 102% of 300?

WORK IT OUT HERE

64 LEAN ON THE WHOLE

What is 97% of 200?

WORK IT OUT HERE

65 LEAN ON THE WHOLE

A \$180 dinner bill has 13% tax added. What is the total?

WORK IT OUT HERE

66 LEAN ON THE WHOLE

An \$80 bill gets a 15% tip added. What is the total?

WORK IT OUT HERE

67 LEAN ON THE WHOLE

What is 104% of 250?

WORK IT OUT HERE

68 LEAN ON THE WHOLE

A \$250 jacket is 20% off, then 5% tax is added to the sale price. What is the final price?

WORK IT OUT HERE

69 LEAN ON THE WHOLE

A \$1,000 card goes up 10%, then down 10%. What is its final value?

WORK IT OUT HERE

70 LEAN ON THE WHOLE

A \$200 phone drops 25% on sale, then 8% tax is added. What is the final price?

WORK IT OUT HERE

71 SWAP TO THE ANCHOR

What is 76% of 25?

WORK IT OUT HERE

72 SWAP TO THE ANCHOR

What is 84% of 50?

WORK IT OUT HERE

73 SWAP TO THE ANCHOR

What is 44% of 75?

WORK IT OUT HERE

74 SWAP TO THE ANCHOR

What is 88% of 25?

WORK IT OUT HERE

75 SWAP TO THE ANCHOR

What is 68% of 125?

WORK IT OUT HERE

76 SWAP TO THE ANCHOR

What is 64% of 150?

WORK IT OUT HERE

77 SWAP TO THE ANCHOR

What is 92% of 25?

WORK IT OUT HERE

78 SWAP TO THE ANCHOR

What is 96% of 75?

WORK IT OUT HERE

79 SWAP TO THE ANCHOR

What is 44% of 175?

WORK IT OUT HERE

80 SWAP TO THE ANCHOR

What is 84% of 225?

WORK IT OUT HERE

Answer Key

Each answer comes with a hint that names the move. The tag says which video to rewatch if you are stuck.

1. 43 — *Carve the Bar*

50% is a single halving cut — split 86 into two equal slices and take one.

2. 36 — *Carve the Bar*

10% is one slice of ten — divide 360 by 10.

3. 14 — *Carve the Bar*

25% is a quarter slice — divide 56 by 4.

4. 4 — *Carve the Bar*

1% is the tiny hundredth sliver — divide 400 by 100.

5. 180 — *Carve the Bar*

75% means quarter the bar and take THREE slices: 240 divided by 4 is one slice, then three of those.

6. \$42 — *Carve the Bar*

50% off is one halving cut — split \$84 into two equal slices and take one.

7. 120 — *Carve the Bar*

75% means quarter the bar and take THREE slices: 160 divided by 4 is one slice, then three of those — not just one quarter.

8. 50 — *Carve the Bar*

10% is one slice of ten — divide 500 by 10.

9. 540 — *Carve the Bar*

75% means quarter the bar and take THREE slices: divide 720 by 4 to get one quarter slice, then take three of those slices.

10. 3000 — *Carve the Bar*

75% means quarter the bar and take THREE slices: 4000 divided by 4 is one slice, then three of those.

11. 12 — *All Seven Anchors*

20% is the fifth-of-the-bar anchor — divide 60 by 5.

12. 10 — *All Seven Anchors*

5% is half of the 10% slice — take 10% of 200, then halve it.

13. 9 — *All Seven Anchors*

10% is one slice of ten — divide 90 by 10.

14. 45 — *All Seven Anchors*

50% is one halving cut — split 90 into two equal slices and take one.

15. \$16 — *All Seven Anchors*

20% is the fifth-of-the-bar anchor — divide \$80 by 5.

16. 7 — *All Seven Anchors*

5% is half of the 10% slice — take 10% of 140, then halve it.

17. 50 — *All Seven Anchors*

20% is the fifth-of-the-bar anchor — divide 250 by 5.

18. 90 — *All Seven Anchors*

75% means quarter the bar and take THREE slices: 120 divided by 4 is one slice, then three of those — not just one quarter.

19. 210 — *All Seven Anchors*

75% means quarter the bar and take THREE slices: divide 280 by 4 to get one slice, then take three of those.

20. 12 — *All Seven Anchors*

5% is half of the 10% slice — take 10% of 240, then halve it.

21. 66 — *Scale the Anchor*

110% is 100% plus 10%: keep the whole 60, then add the 10% slice on top.

22. 72 — *Scale the Anchor*

90% is 100% minus 10%: start from the whole 80, then shave off the 10% slice.

23. 6 — *Scale the Anchor*

7.5% is 75% divided by 10: carve the 75% anchor first, then divide that result by 10.

24. 5 — *Scale the Anchor*

2.5% is 25% divided by 10: carve the 25% anchor first, then divide that result by 10.

25. \$180 — *Scale the Anchor*

120% is 100% plus 20%: keep the whole \$150, then add the 20% slice on top.

26. 190 — *Scale the Anchor*

95% is 100% minus 5%: start from the whole 200, then shave off the 5% slice.

27. 56 — *Scale the Anchor*

175% is 100% plus 75%: keep the whole 32, then add the 75% anchor (three quarter-slices) on top.

28. 30 — *Scale the Anchor*

12.5% is 125% divided by 10: build the 125% result first (whole plus the 25% slice), then divide that by 10.

29. 500 — *Scale the Anchor*

125% is 100% plus 25%: keep the whole 400, then add the 25% slice on top.

30. 3 — *Scale the Anchor*

0.5% is 5% divided by 10: carve the 5% slice first, then divide that result by 10.

31. 12 — *Stack & Unstack Anchors*

Build 15% from anchors: stack the 10% slice plus the 5% slice (half of 10%) and add them.

32. 27 — *Stack & Unstack Anchors*

Build 30% from anchors: stack three 10% slices of 90 and add them.

33. 84 — *Stack & Unstack Anchors*

Build 60% from anchors: stack the 50% slice plus the 10% slice and add them.

34. 48 — *Stack & Unstack Anchors*

Unstack: carve the 50% slice, then shave off the 10% slice to land on 40%.

35. \$36 — *Stack & Unstack Anchors*

Build 15% from anchors: stack the 10% slice plus the 5% slice (half of 10%) and add them.

36. 130 — *Stack & Unstack Anchors*

Build 65% from anchors: stack the 50% slice plus the 10% slice plus the 5% slice and add them.

37. 36 — *Stack & Unstack Anchors*

Unstack: carve the 50% slice, then shave off the 5% slice to land on 45%.

38. 42 — *Stack & Unstack Anchors*

Build 35% from anchors: stack the 25% slice plus the 10% slice and add them.

39. \$276 — *Stack & Unstack Anchors*

115% is 100% plus 15%: build the 15% slice (10% + 5%), then add it to the whole \$240.

40. 14 — *Stack & Unstack Anchors*

3.5% is 35% divided by 10: build 35% (25% + 10%) first, then divide that result by 10.

41. 30 — *Divide Then Multiply*

33 $\frac{1}{3}$ is $\frac{1}{3}$, so divide 90 into three equal slices and take one.

42. 10 — *Divide Then Multiply*

12.5% is $\frac{1}{8}$, so divide 80 into eight equal slices and take one.

43. 40 — *Divide Then Multiply*

66 $\frac{2}{3}$ is $\frac{2}{3}$, so divide 60 into three equal slices and take two of them.

44. 24 — *Divide Then Multiply*

37.5% is $\frac{3}{8}$, so divide 64 into eight equal slices and take three of them.

45. 24 — *Divide Then Multiply*

16 $\frac{2}{3}$ is $\frac{1}{6}$, so divide 144 into six equal slices and take one.

46. \$60 — *Divide Then Multiply*

62.5% is $\frac{5}{8}$, so divide \$96 into eight equal slices and take five of them.

47. 200 — *Divide Then Multiply*

83 $\frac{1}{3}$ is $\frac{5}{6}$, so divide 240 into six equal slices and take five of them.

48. 42 — *Divide Then Multiply*

87.5% is $\frac{7}{8}$, so divide 48 into eight equal slices and take seven of them.

49. 126 — *Divide Then Multiply*

87.5% is $\frac{7}{8}$, so divide 144 into eight equal slices and take seven of them.

50. 16 $\frac{2}{3}$ — *Divide Then Multiply*

$33\frac{1}{3}\%$ is $\frac{1}{3}$, so divide 50 into three equal parts — each part is $\frac{50}{3}$, the exact one-slice value.

51. 18 — *A Percent of a Percent*

Carve the 25% slice of 80 first (quarter 80), then shave $\frac{1}{10}$ of that slice back off — the inner fraction acts on the slice, not the whole bar.

52. 24 — *A Percent of a Percent*

Carve the 10% slice of 200 first, then add $\frac{1}{5}$ of that slice on top.

53. 18 — *A Percent of a Percent*

Carve the 10% slice of 120 first, then add half of that slice on top.

54. 21 — *A Percent of a Percent*

Carve the 10% slice of 150 first, then add $\frac{4}{10}$ of THAT slice on top — the inner fraction acts on the slice, not the whole bar.

55. \$52 — *A Percent of a Percent*

Carve the 10% slice of \$400 first, then add three tenths of that slice on top.

56. 72 — *A Percent of a Percent*

Carve the 25% slice of 320 first, then shave $\frac{1}{10}$ of that slice back off.

57. 42 — *A Percent of a Percent*

Carve the 10% slice of 350 first, then add $\frac{1}{5}$ of that slice on top.

58. 99 — *A Percent of a Percent*

Carve the 25% slice of 360 first (quarter the whole), then add $\frac{1}{10}$ of that slice on top — the inner fraction acts on the slice, not the whole bar.

59. 78 — *A Percent of a Percent*

Carve the 10% slice of 600 first, then add three tenths of that slice on top.

60. 2.4 — *A Percent of a Percent*

Find 12% of 200 by the nested carve (10% slice plus $\frac{1}{5}$ of it), then divide that result by 10.

61. 396 — *Lean on the Whole*

99% is the whole minus 1%: carve the tiny 1% sliver ($400 \div 100$) and subtract it from 400.

62. 49 — *Lean on the Whole*

98% is the whole minus 2%: carve the 2% sliver and subtract it from 50.

63. 306 — *Lean on the Whole*

102% is the whole plus 2%: keep all of 300, then add the 2% sliver on top.

64. 194 — *Lean on the Whole*

97% is the whole minus 3%: carve the 3% sliver and subtract it from 200.

65. \$203.40 — *Lean on the Whole*

13% is the 10% slice plus three 1% slivers; add that tax on top of the whole \$180.

66. \$92 — *Lean on the Whole*

15% is the 10% slice plus the 5% slice (half of 10%); add that tip on top of the whole \$80.

67. 260 — *Lean on the Whole*

104% is the whole plus 4%: keep all of 250, then add the 4% sliver on top.

68. \$210 — *Lean on the Whole*

Chain two factors in order: first carve 20% off \$250 to get the sale price, then add 5% tax to THAT shorter amount.

69. \$990 — *Lean on the Whole*

The down-10% acts on the bigger amount after the rise, so it shaves more than it gained — chain the two factors and it lands below \$1,000.

70. \$162 — *Lean on the Whole*

Chain two factors in order: first carve 25% off \$200 to get the sale price, then add 8% tax to THAT shorter amount.

71. 19 — *Swap to the Anchor*

Swap it: $a\%$ of $b = b\%$ of a , so this is 25% of 76 — just a quarter of 76.

72. 42 — *Swap to the Anchor*

Swap it: $a\%$ of $b = b\%$ of a , so this is 50% of 84
— just half of 84.

73. 33 — *Swap to the Anchor*

Swap it: $a\%$ of $b = b\%$ of a , so this is 75% of 44
— quarter 44 and take three slices.

74. 22 — *Swap to the Anchor*

Swap it: $a\%$ of $b = b\%$ of a , so this is 25% of 88
— just a quarter of 88.

75. 85 — *Swap to the Anchor*

Swap it: $a\%$ of $b = b\%$ of a , so this is 125% of 68
— keep 68 and add a quarter of 68.

76. 96 — *Swap to the Anchor*

Swap it: $a\%$ of $b = b\%$ of a , so this is 150% of 64
— keep 64 and add half of 64.

77. 23 — *Swap to the Anchor*

Swap it: $a\%$ of $b = b\%$ of a , so this is 25% of 92
— just a quarter of 92.

78. 72 — *Swap to the Anchor*

Swap it: $a\%$ of $b = b\%$ of a , so this is 75% of 96
— quarter 96 and take three slices.

79. 77 — *Swap to the Anchor*

Swap it: $a\%$ of $b = b\%$ of a , so this is 175% of 44
— keep 44, then add three quarter-slices of 44.

80. 189 — *Swap to the Anchor*

Swap it: $a\%$ of $b = b\%$ of a , so this is 225% of 84
— double 84, then add a quarter of 84.