

# Outcome 3 - Calculating Mental Percentages

## Bronze examples

**Examples...** **\*\*Ask yourself... "how many times does my percentage go into 100?"\*\***

50% of 16 =  $\frac{1}{2}$  of 16 = 8

25% of 20 =  $\frac{1}{4}$  of 20 = 5

$33\frac{1}{3}\%$  of 12 =  $\frac{1}{3}$  of 12 = 4

20% of 45 =  $\frac{1}{5}$  of 45 = 9

10% of 30 =  $\frac{1}{10}$  of 30 = 3

## Silver examples

**Examples...** **\*\*Think of the BIGGEST bronze percentage that divides into your silver one\*\***

75% of 28 =  $\frac{3}{4}$  of 28 = 21

90% of 40 =  $\frac{9}{10}$  of 40 = 36

80% of 20 =  $\frac{4}{5}$  of 20 = 16

$66\frac{2}{3}\%$  of 12 =  $\frac{2}{3}$  of 12 = 8

## Gold examples

**Examples...**

45% of 900 = 405

5% of 240 = 12

**\*\*Find 10% and 5% first!\*\***

10% = 90

5% = 90 ÷ 2 = 45

40% = 4 × 90 = 360

45% = 45 + 360 = 405

**\*\*Find 10% and half it!\*\***

10% = 24

5% = 24 ÷ 2 = 12

## Bronze Questions

Work out the following percentages... without a calculator!

- |                           |                           |
|---------------------------|---------------------------|
| 1 50% of 12               | 2 25% of 20               |
| 3 10% of 60               | 4 20% of 60               |
| 5 $33\frac{1}{3}\%$ of 27 | 6 25% of 44               |
| 7 10% of 20               | 8 $33\frac{1}{3}\%$ of 21 |
| 9 25% of 32               | 10 1% of 300              |

## Silver Questions

Work out the following percentages... without a calculator!

- |                           |                            |
|---------------------------|----------------------------|
| 1 75% of 32               | 2 30% of 70                |
| 3 40% of 40               | 4 $66\frac{2}{3}\%$ of 24  |
| 5 60% of 30               | 6 70% of 90                |
| 7 $66\frac{2}{3}\%$ of 27 | 8 80% of 15                |
| 9 90% of 80               | 10 $66\frac{2}{3}\%$ of 18 |

## Gold Questions

Work out the following percentages... without a calculator!

- |               |                |
|---------------|----------------|
| 1 5% of 120   | 2 5% of 500    |
| 3 55% of 160  | 4 95% of 20    |
| 5 85% of 240  | 6 65% of 820   |
| 7 45% of 860  | 8 35% of 740   |
| 9 95% of 1840 | 10 85% of 3820 |

## Bronze Answers

- |    |   |     |    |
|----|---|-----|----|
| 1. | 6 | 2.  | 5  |
| 3. | 6 | 4.  | 12 |
| 5. | 9 | 6.  | 11 |
| 7. | 2 | 8.  | 7  |
| 9. | 8 | 10. | 3  |

## Silver Answers

- |    |    |     |    |
|----|----|-----|----|
| 1. | 24 | 2.  | 21 |
| 3. | 16 | 4.  | 16 |
| 5. | 18 | 6.  | 63 |
| 7. | 18 | 8.  | 12 |
| 9. | 72 | 10. | 12 |

## Gold Answers

- |    |      |     |      |
|----|------|-----|------|
| 1. | 6    | 2.  | 25   |
| 3. | 88   | 4.  | 19   |
| 5. | 204  | 6.  | 533  |
| 7. | 387  | 8.  | 259  |
| 9. | 1748 | 10. | 3247 |