

Extra Practice 5

$$\begin{aligned} \text{1a) } a &= 3 & a^2 + b^2 &= c^2 \\ b &= 6 & 3^2 + 6^2 &= c^2 \\ c &=? & 9 + 36 &= c^2 \\ & & 45 &= c^2 \\ & & \sqrt{45} &= c \\ & & \boxed{6.7} &= c \end{aligned}$$

$$\begin{aligned} \text{b) } a &= 4 & a^2 + b^2 &= c^2 \\ b &= 12 & 4^2 + 12^2 &= c^2 \\ c &=? & 16 + 144 &= c^2 \\ & & 160 &= c^2 \\ & & \sqrt{160} &= c \\ & & \boxed{12.6} &= c \end{aligned}$$

$$\begin{aligned} \text{c) } a &= 2 & a^2 + b^2 &= c^2 \\ b &= 10 & 2^2 + 10^2 &= c^2 \\ c &=? & 4 + 100 &= c^2 \\ & & 104 &= c^2 \\ & & \sqrt{104} &= c \\ & & 10.2 &= c \end{aligned}$$

$$\begin{aligned} \text{d) } a &=? & a^2 + b^2 &= c^2 \\ b &= 4 & a^2 + 4^2 &= 8^2 \\ c &= 8 & a^2 + 16 &= 64 \\ & & \quad \quad \quad -16 & \quad -16 \\ & & a^2 &= 64 - 16 \\ & & a^2 &= 48 \\ & & a &= \sqrt{48} \\ & & \boxed{a} &= \boxed{6.9} \end{aligned}$$

$$e) a = ?$$

$$b = 5$$

$$c = 9$$

$$a^2 + b^2 = c^2$$

$$a^2 + 5^2 = 9^2$$

$$a^2 + 25 = 81$$

$$a^2 = 81 - 25$$

$$a^2 = 56$$

$$a = \sqrt{56}$$

$$\boxed{a = 7.5}$$

$$f) a = ?$$

$$b = 15$$

$$c = 20$$

$$a^2 + b^2 = c^2$$

$$a^2 + 15^2 = 20^2$$

$$a^2 + 225 = 400$$

$$a^2 = 400 - 225$$

$$a^2 = 175$$

$$a = \sqrt{175}$$

$$a = 13.2$$

$$2a) a = 5$$

$$b = 12$$

$$c = d$$

$$a^2 + b^2 = c^2$$

$$5^2 + 12^2 = c^2$$

$$25 + 144 = c^2$$

$$169 = c^2$$

$$\sqrt{169} = c$$

$$\boxed{13 = c}$$

$$b) a = 8$$

$$b = 13$$

$$c = d$$

$$a^2 + b^2 = c^2$$

$$8^2 + 13^2 = d^2$$

$$64 + 169 = d^2$$

$$233 = d^2$$

$$\sqrt{233} = d$$

$$\boxed{15.3 = d}$$